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THE

GLASGOW MEDICAL JOURNAL.

EDITED BY

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ORIGINAL ARTICLES.

AMPUTATION OF THE SCAPULA FOR SARCOMA, WITH PRESERVATION OF A USEFUL LIMB.[1]

By HENRY E. CLARK,
Professor of Surgery in St. Mungo's College, Glasgow.

The patient, a Jewish boy, 13 years of age, was admitted into my wards from Mossbank Industrial School on 28th June, 1895. He entered the School about three months before that date; he complained at the time of pain in front of the left wrist, but the doctor did not detect any abnormality. A month later, a swelling over the left scapula was noticed by one of the attendants at the School.

The report taken by my House Surgeon, David Glen, M.B., C.M., at the time of his admission into hospital, runs as follows:—

"The patient looks a healthy, well-nourished boy. A large rounded swelling bulges from the left scapular region. The shoulder droops visibly when he is in the erect posture. The skin in the centre of the swelling, over an area of 3 in. by 2 in., is inflamed, dull red in appearance, and not freely movable over the tumour. The superficial veins are dilated all over the scapular region. The tumour itself is hard, and painless to palpation, excepting at the lower angle, inner end of the spine, and along the axillary border, in which situations the growth is presumably more recent, and is less firm, and tender to the touch. The whole mass clothes, and is firmly adherent to, the dorsal aspect of the infraspinous fossa. There also seems to be some new growth on the ventral aspect, the axillary border being rounded and thickened, and the inferior angle projected fully an inch from the chest wall. The humerus is freely movable in the glenoid cavity, but the scapular movements are impeded, although they are free

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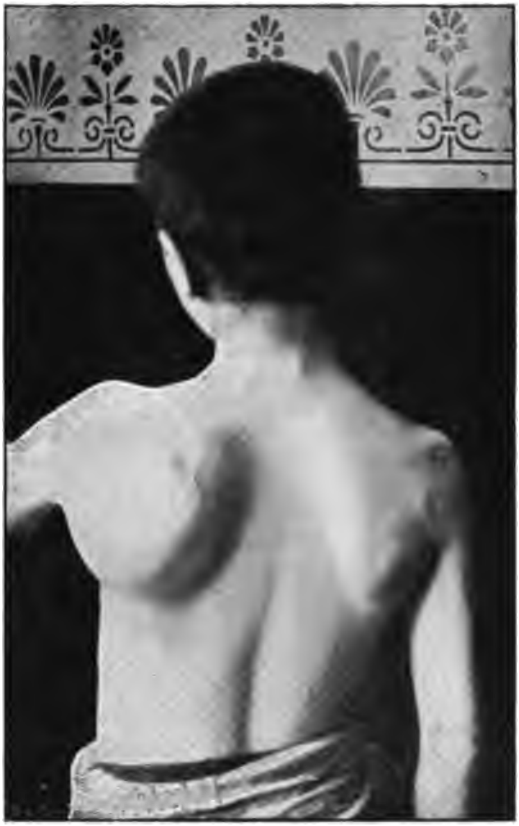
[1] This paper was read, and the patient from whom the tumour was removed was shown, at a meeting of the Glasgow Pathological and Clinical Society on 14th October, 1895.



From photograph taken before operation.

enough to show that the chest wall is not implicated in the tumour. The supraspinous fossa, acromion and coracoid processes, and humerus seem to be unaffected. Scapular measurements: vertical, right 4 in., left 4¾ in.; transverse, right 2½ in., left 4½ in. Chest: a few suspicious moist râles are heard at both bases behind. Cardiac dulness is normal. At the apex of the heart the second sound is accentuated. Over the pulmonic area there is a tendency to reduplication of the second sound. Radial pulse 85, less full on left than on right."

Operation (3rd July, 1895).—Patient was anæsthetised with ether by Dr. T. B. Henderson. A horizontal incision was made along the upper margin of the scapular spine, and was prolonged to the tip of the acromion; from the centre of this two cuts were carried downwards to the inferior angle, so as to enclose between them a V-shaped piece of skin. This sacrafice of skin was considered expedient in view of the fact that the portion removed was reddened, glazed, and apparently adherent to the tumour. The latter was found to have infiltrated the infraspinous muscle and the posterior fibres of the deltoid. The upper edge of the bone was first freed, and the acromion was divided at the great scapular notch; next, the connections of the posterior border were cut through, and those of the inferior angle and axillary border dealt with. The capsule of the shoulder-joint was then opened, and the connections of the scapula and humerus divided; finally, the coracoid was cut through at its base, and the bone and tumour removed. The hæmorrhage was not very great, the posterior scapular, suprascapular, and dorsalis scapulæ arteries being seized with pressure forceps before being cut. Some enlarged glands being found in the axilla, it was thought best to clear out that cavity as thoroughly as possible.

In consequence of so much skin being removed there was considerable tension on the wound, especially at the upper part, and during the process of healing a little gaping took place; the lower part healed by first intention. The patient was conscious and intelligent when he reached the ward, but some amount of shock was evidenced by his pulse, and by a subnormal temperature in the evening.

He made an excellent recovery, and was dismissed from the Infirmary on 15th August.

Pathological Report.—The tumour occupied both surfaces of the scapulæ, but was much thicker on the dorsum than the venter: on the former it was 2 in. thick, and on the latter ¾ in. The upper part of the axillary border, the glenoid cavity, the inferior angle and the suprascapular fossa were not implicated. In the centre of the tumour the thin bone between the dorsum and venter had been destroyed, but as far as could be made out the "costæ" were intact. Microscopic examination showed the tumour to be a sarcoma, mainly of the round celled variety, but here and there groups of spindle-cells were observed. In the surface layers the tumour tissue was intimately mixed with the striped fibres of the muscles it had infiltrated.

Remarks.—The only detail of the operation calling for comment was the preservation of the acromion and coracoid processes. Having decided on the possibility of retaining the arm, I was anxious to secure as good support as I could for the head of the humerus, and saw I could obtain this by retaining the coraco-acromial arch. There was this additional advantage in keeping the coracoid, that it retained one of the attachments of the biceps, and was in its turn held in place by the coraco-clavicular ligaments.

Now that four months have elapsed since the operation, it is possible to judge of what has been gained by this modification, and I think we have every reason to be satisfied with it. The boy can put the hand on the opposite shoulder, can raise it to his mouth, to the top of the head, and to the occipital region, and can also put it behind his back. The only movement which is very defective is the direct elevation (deltoid action); but this is in part, if not wholly, due to the cicatrix, and it is probable that as the latter gets more pliable and elastic, he will in some measure regain the power of elevation.

Mr. H. H. Clutton, in his article on "Diseases of Bones" in Treves's *System of Surgery,* recently published (vol. i, p. 921), says, "Of the flat bones the *scapula* has been frequently removed in whole or in part for sarcoma. The lower segment especially can be successfully excised; but the removal of the whole bone, and with it the arm and outer half of the clavicle, which would generally be necessary, is a formidable operation, almost comparable in its results with disarticulation at the hip." The case above detailed does not bear out Mr. Clutton's remarks, for it was both possible and easy to remove the whole scapula without amputating the upper limb, and (as has been shown) a thoroughly useful arm was left. Further, the operation is not so serious as he represents. In Ashhurst's *International Encyclopædia of Surgery* (vol. iii, p. 469), a table is given of "Total excision of the scapula, the arm being preserved." The list contains references to 42 cases, in 2 of which the result was not stated, and in 8 death ensued, the rest all recovered, so that excluding the undetermined cases, the mortality was 8 out of 40, or exactly 20 per cent. To this list I am able to add 40 additional cases with 4 deaths, this series having only a mortality of 10 per cent; or, taking the two lists together, we have 80 cases with 12 deaths, equal to an average mortality of 15 per cent.

LECTURES ON CLINICAL MEDICINE.

DELIVERED IN THE GLASGOW ROYAL INFIRMARY.

By JOHN LINDSAY STEVEN, M.D.,
Physician and Lecturer on Clinical Medicine in the Infirmary.

I.

LANDRY'S PARALYSIS.[1]

Ladies,—During the first few days of the session, in the course of our ward visits I frequently directed your attention to the case of a patient in the female ward, suffering from a generalised form of paralysis presenting the features which are generally described as those characteristic of Landry's acute ascending paralysis, and I desire now to make the case the subject of a clinical lecture.

The patient, Mrs. M'C., aged 23 years, was admitted to ward 8 on the 25th October, 1895, complaining of generalized paralysis of gradual onset from the legs upwards since the 15th.

I had seen her, in consultation with Dr. Burges of Crown Street, on the 21st, when the following facts as to the onset of the illness were obtained:—

On the 12th October, after feeling a little out of sorts for a day or two, she consulted Dr. Burges for what seemed to be a common cold, and for which the usual treatment was recommended. On the 14th, headache was the chief symptom complained of, and was relieved by phenacetin. She was able, however, to rise in the evening and prepare her husband's supper. On the 15th, headache was still very severe, and in the afternoon with difficulty she had managed to get out of bed and open the door. With this exception she was in bed all day. On the 16th she experienced a stiffness in her legs, and in the course of the day they became completely paralysed. On the 18th the hands and arms were involved. On the 21st, when I saw her with Dr. Burges, it was noted that the arms and legs were almost completely paralysed, but that the eyelids, lips, tongue, head and neck and diaphragm were quite unaffected. Sensation tested in the lower limbs was absolutely normal. A few rose coloured spots were seen on the front of the abdomen. The bladder and bowels were quite normal; and, the patient being between four and five months pregnant, of her second child, the fœtal heart could be easily heard. It is also of importance to record that a careful enquiry into the habits of the patient as regards the use of alcohol was made, and the result was to show that she had always been strictly temperate.

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[1] Delivered Thursday, 5th December, 1895.

The following is the clinical history as made out by my resident assistant, Mr. Arch. Young, B.Sc., M.B., after her admission to the ward:—

"She was uniformly healthy until the onset of her present illness. About a fortnight before her admission she says that she felt somewhat "colded," and experienced sensations which were then regarded by herself as premonitory to a severe cold of an influenza type, an opinion which Dr. Burges, who first saw her on the 12th inst., somewhat confirmed.

"Her legs and her back felt sore, and she complained of general malaise. After resting for a day and making use of ordinary domestic remedies, she felt somewhat better, but soon the tired, sore feeling in her legs returned, the headache became troublesome, and she experienced a great drowsiness, occasionally having difficulty in keeping awake. On the evening of Tuesday, 15th October, she found her legs becoming very weak, and had great difficulty in attempting to walk. Next morning she was quite unable to walk, and has not had the power of her legs since. It is difficult to obtain precise information as to the manner in which the paralysis involved the lower limbs. On the second day after the onset of the paraplegia, the arms became involved, apparently the upper arms before the hands. No definite pains have been felt, but since the onset of the paralysis, the affected limbs have had a somewhat numb feeling, and at times distinct, and very unpleasant tingling has been remarked, which of late has been almost constant. So far, speech has not been affected. She states that she can swallow with the greatest ease, and she has no difficulty of respiration. Headache, which was very severe at the outset, has now quite passed off.

"She can give no cause for the onset of her illness, save that she may have got a chill while washing a few days before her first symptoms were experienced. The drowsy state at first present passed off with the onset of the paralysis, and since then, insomnia has been complained of. The special senses do not seem to have been at all involved, and she states that she has perfect control over both bladder and bowels. Her appetite has been fair, but vomiting occurred on one or two occasions before admission, due, she thinks, to medicine administered. Sweating had also been a pronounced feature of the case before coming in to Hospital, and Dr. Burges was of opinion that this might have been originally due to phenacetin administered for the relief of the headache.

"At the time of her admission the patient was in an utterly helpless condition. The cheeks were flushed, but rather hollow, and the pupils were widely dilated, becoming in a short time rather less so. The lips were dry, and the gums and teeth covered with sordes. The surface of the tongue was dry and caked, and the breath had a very unpleasant odour. The skin was hot, and the whole surface of the body was bathed in an ill-smelling perspiration. The arms and hands were kept lying in one position, and could not be moved by the patient herself to the very slightest extent, except for a very limited movement of the terminal phalanges. The fingers of both hands were kept more or less persistently in a semi-flexed state, and on forcible extension of the fingers, they simply returned to this condition, apparently by their own elasticity. The lower limbs were also quite immobile so far as any voluntary effort was concerned. All the reflexes, superficial and deep, of the upper and lower limbs, and of the surface of the abdomen, seemed to be quite abolished, and no clonus could be developed. Sensation generally was quite unimpaired, the only sensory phenomena noted being the tingling previously described, which was most pronounced on the inner aspect of the knees and in the upper arms, and which caused so much discomfort as to lead the patient to frequently demand a change of position. At times, too, a pain of a darting kind was complained of as passing down both arms.

"The pulse was rapid, numbering 132 per minute, but no abnormality was detected in the condition of the heart, the lungs, or the liver. The urine presented the following characters:—Colour, normal; reaction, acid; specific gravity, 1,026; albumen, a slight trace; sugar and blood, absent; abundant flocculent deposit.

"The uterus could be made out by palpation reaching almost to the umbilicus, and the sounds of the fœtal heart could be distinctly heard.

"During the first night of residence she was extremely restless, constantly desiring a change of position, crying out for something to drink, or asking for one or other of the limbs to be rubbed on account of the tingling. The pulse maintained its rapid character, and was of very low tension."

On the day after her admission, a careful examination of the blood was undertaken at my request by Mr. Walter K. Hunter, B.Sc., M.B., who has had much experience in such investigations. He reports a slight excess in the number of leucocytes, with Brownian movements visible in the granules of some of them; in some of the white blood corpuscles, also, a few black granules could be distinctly observed. The red corpuscles he found to be normal.

On the 26th October, 1895, I made out that there was very slight power in the left hand, so that she could close her fingers on my hand very lightly. The right hand was powerless, but Dr. Burges, who happened to be present on this occasion, reported that when I saw her with him on the 21st October, the right hand was then much in the same state as I now found the left hand to be. The plantar reflexes were quite abolished, but she felt tickling of the soles quite well, though she could not draw away the feet. Sensation of touch, pain, and temperature—the latter being investigated by test-tubes filled with hot and cold water—we found to be normal in every part of the body. Perspiration was abundantly present, and had been so all night. There was absolutely no tendency to the formation of bed-sores, notwithstanding the fact that before coming into the ward two large fly blisters had been applied to the lower spinal region. The blisters had vesicated well, but the raw surfaces quite healed up during her residence in Hospital.

On the morning of the 28th October, the first indications of respiratory involvement were noted. Although it could not be said that intercostal action was entirely abolished it was very slight, and the breathing seemed to be very largely carried on by the diaphragm. Nurse Keillor reported to-day that for the first time enemata could not be retained, apparently from some relaxation of the sphincter; but the functions of the bladder were quite normally performed. The paralytic phenomena were much as before, and the fœtal heart could still be distinctly heard.

On the 31st October, it was noted that the paralytic phenomena in the arms and legs were on the whole slightly improved. The grip of the left hand was a little stronger, and the right elbow could be moved a very little. The condition of the legs was much as before. Sensation was still quite normal. The respiratory function was decidedly more involved, the breathing being very shallow, and almost entirely diaphragmatic. Cough with generalised bronchial wheezing had set in, and she was quite unable to expel the tracheal contents into the mouth. The pulse was very small and rapid, numbering 120. The intellectual faculties were quite unimpaired, and she was obviously in great anxiety as to the result of her illness, a circumstance which I was inclined to regard as of unfavourable import.

Before going on to describe the terminal phenomena of the case, a word or two may be said as to the temperature. The course of the disease was almost quite apyrexial. When I first saw the patient before admission, the temperature was about 100° F. During residence the temperature curve was practically normal, ranging from subnormal or normal in the morning to 99° F. in the evening, until the 31st October, when it began to rise and continued rising during the last day of the illness, till at the time of death 105° F. was recorded.

The condition of the bowels during residence was somewhat constipated, requiring the use of enemata. Latterly, as has been stated, the sphincter ani became somewhat relaxed, so that the injection fluid was not retained. But it is to be noted that the patient had no power to expel the contents of the rectum, and it was necessary for the nurse to aid the passage of the scybalous masses through the relaxed sphincter. Such a condition clearly indicated a pronounced paresis of the abdominal muscles.

We shall see in a little that the condition of the spleen is probably of importance in cases of Landry's paralysis. It has been already noted that there was no enlargement of the liver, and although no special note of the splenic condition has been recorded, it may be assumed that as a careful palpation of the abdomen was carried out, any considerable increase in the size of the organ was not likely to have been passed over.

Mr. W. K. Hunter, B.Sc., M.B., my medical tutor, undertook an investigation of the electrical reaction of the muscles of the arms and legs, on 27th and 29th October. On the former date, when I witnessed the examination, electrical reactions in both arms were normal, but in the left foot over the electrical centre for the extensor brevis digitorum, A.C.C. was equal to or possibly greater than K.C.C., the contraction also being slow in occurrence. The Faradic current gave no contraction.

On the latter date, however, in the left foot with a current of

2 milliampères over the extensor brevis digitorum, K.C.C. was greater than A.C.C., while with the interrupted current no contraction was obtained. In the legs there was diminished excitability both to the galvanic and the Faradic currents, but particularly to the Faradic. At the date of this examination the legs had been completely paralysed for at least ten days, and therefore I am not surprised that some diminution of electrical excitability was found in the muscles of the lower extremities.

On the afternoon of the 31st October, the respiratory condition became the source of very great anxiety. The breathing was very distinctly diaphragmatic and much more laboured; and between 8 and 9 P.M. each succeeding breath was thought likely to be the last. The patient fully realised her dangerous condition, and the extreme state of suffering into which she then passed seemed to be entirely caused by the almost complete inability to perform the mechanical part of respiration on account of muscular paralysis. The intelligence remained acute until about 11·30 P.M., when her mind wandered a little. About half-past 12 she became suddenly sensible again, and the breathing improved considerably.

The improvement was maintained throughout the remainder of the night and throughout the day, on the 1st of November. Towards night, however, the breathing again became unsatisfactory; and about 11·30 P.M. she passed into a semi-comatose condition, which continued until the time of her death at 3·45 on the morning of 2nd November. During the last day of life the temperature rose steadily, 105° F. being registered at the time of death.

With regard to the treatment of the patient I have unfortunately but little to say. Both Dr. Burges and myself felt ourselves, from the first, to be in the presence of a fell disease, with the essential nature of which we were but imperfectly acquainted. We felt that the administration of the active remedies usually employed in cases of acute spinal paralysis was contra-indicated by the patient's pregnancy, and we were forced to content ourselves with the adoption of measures for the maintainance of her strength. After her admission to the ward the same line of treatment was pursued; and, as the idea of the spreading paralysis being the result of some toxic condition was now more definitely taking shape in the minds of those of us who were watching the progress of the case from day to day, it was resolved to do nothing to check the sweating which had all along been a prominent feature of the case, and which it was thought might possibly be eliminative in its nature. She was placed upon a water bed, concentrated fluid food was administered at frequent intervals, she was encouraged to drink freely of water and diluent fluids, three ounces of brandy were given in the twenty-four hours, and latterly, when the respiration began to be involved, inhalations of oxygen were freely resorted to with slight temporary relief. Our efforts, however, were quite unavailing, and as I have said, she sank from failure of the respiration.

The attempts of Dr. Burges and myself to obtain the consent of her husband to the performance of a *post-mortem* examination were quite unsuccessful, and thus we have to content ourselves with a clinical diagnosis of the case. So far as I can judge, it was a very typical example of that disease which for the past thirty-six years has been known to the profession as Landry's acute ascending paralysis.

Landry published his paper on the disease which has since borne his name on the 29th July, 1859.[1] He gives a minutely detailed account of one case occurring in a weakly man of 43 years of age, in whom the disease ran its course in about seven days, and in whom a careful *post-mortem* examination revealed no appreciable lesion of the central nervous system. The history of this case was in all respects very similar to that I have just recorded, with this exception—that, whereas Landry's patient had always been delicate, ours had always been healthy until the onset of her fatal illness. In the course of his paper he refers to ten cases in all, five of which he had personally observed. Subsequent accounts of the disease, in this country at least, have been very largely based upon the original description of Landry. Indeed, if we are to accept the authority of Hilton Fagge,[2] the disease is a very rare one in Great Britain, not a single typical case having been recorded in Guy's Hospital; and one or two cases cited by Dr. Ross appear to be all that have occurred in England during the thirty years preceding the publication of Fagge's book. Fagge himself and Dr. Pye Smith had never seen a case, but within the last five or six years a good many cases have been reported in the weekly journals.

The essential features of Landry's paralysis may be briefly stated as follows. They are:—The somewhat sudden onset, after a period of ordinary malaise, of paralysis affecting first the lower limbs, and spreading upwards, generally with great rapidity and without atrophy; the complete retention of sensation to the last; the maintenance of normal electrical reactions; the absence of any involvement of the bladder and rectum; the freedom from any tendency to bed-sores; the absence of marked fever; and, in fatal cases, the ultimate involvement of the respiratory apparatus. These features sufficiently distinguish the disease from such affections as acute myelitis and acute and subacute spinal paralyses, in all of which sensory involvement, paralytic conditions of the bladder and rectum, and a tendency to bed-sores are more or less marked phenomena. It is seldom, too, that these diseases run such a rapid course or spread throughout the body so extensively. Judged by the criteria just laid down, I think it may be admitted that our case, from the clinical point of view, was a fairly typical example of Landry's paralysis.

On first seeing the patient with Dr. Burges at her own home, it occurred to me to say to him that the whole aspect of the case reminded me of two things. The first was that the morbid phenomena we were then considering together resembled very closely those of a case of fatal diphtheritic paralysis which I had seen on the 27th April, 1894, in consultation with my friend Dr. John Wright, of Anderston, and which I take this opportunity of relating to you in a sentence or two. The patient was a girl, 12 years of age. About seven weeks before I saw her, she had become ill with sore throat, which ultimately turned out to be pharyngeal diphtheria. The local condition cleared up in about a fortnight, and at the end of the third week she went for a change to Largs; but even before leaving town, a very slight nasal regurgitation on swallowing fluids had been noticed. In a day or two she returned from Largs, complaining of pain in the diaphragmatic region; and it was observed that the palatal paralysis had in the interval become much worse, the voice having then a distinctly nasal quality. About two weeks before my visit, marked weakness in the lower limbs set in, followed, in a day or two, by paresis of less degree in the arms. During this period also there had been much vomiting, which Dr. Wright endeavoured to control by the use of bismuth and soda. When I saw the patient, she was lying in bed almost unable to move. The voice was distinctly nasal in character; there was a frequent ineffective cough; and the chest was full of moist bronchial râles. The palate drooped very much, but the mucous surface of the pharynx presented quite a healthy appearance. There was almost complete paralysis of the lower limbs, the feet, as the patient lay on her back in bed with the shoulders slightly raised, being rotated outwards. The breathing was very shallow, and there was quite distinct evidence of intercostal and diaphragmatic paresis. The only part of the body which the patient could move with any freedom was the head; she was perfectly intelligent and answered questions correctly without hesitation.

The impression I received, like that which forced itself upon us during the last days of Mrs. M'C.'s life, was that she was dying from sheer muscular failure, spreading to the respiratory apparatus. Only the most gloomy prognosis could be given, which was verified by the fact that two hours after my visit the girl died from failure of the breathing due to implication of the diaphragm.

In their later manifestations, then, the features of the two cases I have now related were very strikingly similar; and Dr. Burges and I made the most careful enquiry into the possibility of diphtheria being an element in Mrs. M'C.'s illness. Although Dr. Burges was aware that diphtheria was tolerably prevalent in the neighbourhood in which she lived, our efforts to trace any connection between the paralysis and diphtheria were quite unavailing. It was also in this connection interesting to me, when, in the course of my study of the present case, I came to read Landry's paper, to find that Dr. Gubler, in whose wards one of the ten cases occurred, in an appended note called attention to the similarity of the condition to diphtheritic paralysis.

The second thing that the condition of the patient reminded me of was the effect produced upon an animal by the subcutaneous injection of curare. There was wide-spread muscular paralysis, whilst sensation and the other functions of the economy seemed to be quite unimpaired. The impression at first received of the disease being probably of toxæmic origin became more and more intensified under continued observation in hospital.

I have now to say that the incompleteness of the case just recorded, in so far that we unfortunately failed to obtain permission to examine the body after death, is, so far as I personally am concerned, to a very limited extent compensated for by the circumstance that on the 16th February, 1894, as Pathologist to the Infirmary, I had the opportunity of performing an autopsy in a case presenting most of the features characteristic of Landry's paralysis. The case occurred in the wards of my colleague, Dr. D. C. M'Vail, to whom I am indebted for the following concise yet very comprehensive clinical summary, which he supplied for the pathological journal of the Hospital, from which I now extract it:—

"The patient, Peter R., aged 27, was admitted under the care of Dr. D. C. D'Vail on the 14th February, 1894, and died the next day at 9·30 A.M. His illness began five days before admission. On the first day he began work at 2 A.M., and at 6 A.M. he complained, according to his brother, of 'prinkling' in the arms and legs. The patient himself said, however, that at first he felt short sharp pains, and afterwards a 'prinkling' sensation in the legs only, the arms not being affected for three days. He worked on the first day, always feeling his legs becoming weaker, until stopping time at 10 A.M. Then he walked home, a distance of a mile, unassisted. He went to bed early in the evening, and by next day his legs were quite powerless. Headache began on the second day. On the third there was pain in the back between the shoulders, and a sense of constriction round the lower part of the abdomen, two inches above the pubes. On the fourth day the power of the arms, especially the right, was lost; and on the fifth, the day of admission, 'prinkling' in the face, particularly around the lips, and a feeling of intense coldness in the mouth were experienced.

"On admission there was complete loss of power in the legs and right arm, and to a less marked degree in the left arm. There was possibly, also, some weakness of the facial muscles. Sensation to touch was abolished below the level of the feeling of constriction, and it was greatly impaired in the arms, particularly in the right. Severe pain was complained of over the spine between the shoulders, and headache also was very troublesome. No diaphragmatic movement could be seen, the respiration being carried on very feebly. Deep inspiration was very limited, the xiphoid movement not being greater than about a quarter of an inch. There was no motion of the bowels, and the urine, which was passed in bed, gave a very faint sugar reaction. The breath had a very foul odour, but the temperature and the condition of the lungs and heart were quite normal. He died from loss of respiratory power, the heart acting well and strongly up to the last."

I shall now read to you the report of the *post-mortem* examination which I performed on the day after death in the presence of Dr. D. C. M'Vail:—

Summary of Post-mortem.—Fluid blood; extreme congestion of kidneys; all the other organs practically normal.

External Appearances.—Well nourished body; rigor mortis well marked; *post-mortem* lividity exceedingly well marked on the back—except over the shoulder blades, the buttocks, the calves, and the tips of the elbows, on which the body had been resting, and around the ankles, where there had been a bandage.

On exposing the surface of the brain, the convolutions are found to be somewhat dry, and very slightly flattened, as if from internal pressure; the soft membranes also present moderate opacity, but not more so than is frequently met with in cases without special nervous phenomena. The spinal dura mater presents healthy appearances, and careful dissection of the whole brain and cord fails to detect any abnormality visible to the naked eye, the gray matter of the cord, in particular, presenting quite normal appearances.

On opening the chest the lungs are found to be quite non-adherent, and normal in appearance. The pericardium contains about 1 oz. of clear serum. The heart presents perfectly healthy appearances. In every part of the body the blood is quite fluid and drains out. The thoracic aorta is normal. The trachea and œsophagus are likewise so. Both kidneys are deeply injected, on section presenting a dark red colour. From the cut surface abundant fluid blood is easily expressed, and the capsules are quite non-adherent, the surfaces being smooth. The liver is practically normal, but the larger veins contain a large amount of fluid blood, none of the appearances of passive congestion being present, however. The stomach presents healthy characters. The gall bladder, duct, duodenum, and pancreas are normal. The contents of the stomach consist of about 2 oz. of opaque, thick, white, mucous material, for the most part "slabbered" over the mucous surface. The mucous membrane of the whole large and small intestine is carefully examined, and found to be normal. The wall of the urinary bladder is greatly thickened as if from obstruction, but a full sized bougie passes through the urethra with ease.

Here, then, we have a second case, which I think may quite justly be quoted as an example of Landry's paralysis. No doubt the record of it differs a little from the classical descriptions, particularly as regards the marked sensory involvement, the spinal pain, and the incontinence of urine noted after admission to hospital; but the striking clinical facts taken as a whole, especially the extremely rapid course of the case, and the absolutely negative result of the autopsy as regards gross lesion of the central nervous system, amply justify us in regarding the disease from which Dr. M'Vail's patient died as conforming in the main to Landry's description. As regards the morbid phenomena revealed by the *post-mortem* examination, it may be said in general terms that they were, on the whole, these which I had been accustomed to find after death from opium poisoning, from chloroform inhalation, and from asphyxia.

But in judging of the essential nature of this second case, we are not confined alone to the naked eye appearances of the organs after death. The spinal cord was carefully hardened in Müller's fluid, and sections of portions of it were cut by the celloidin method. The sections were stained by Weigert's method and by alum-carmine, and the histological characters were demonstrated to my class of Practical Pathology in the summer session of 1894, all the students receiving specimens stained in both ways for themselves. As the result of this further examination, it was demonstrated that there was no obvious departure from the normal in the histological structure of the cord. It was suggested at the time, particularly on examination of the alum-carmine preparations, that possibly the connective tissue nuclei of the cord, so strikingly brought into view by the staining reagent, might be very slightly increased in number, but this was very doubtful and could not be insisted upon. The nerve fibres, and the multipolar cells of the grey matter presented quite healthy appearances; and, in particular, it was noted that there was no trace of sclerosis or other chronic lesion. I have recently, in view of this clinical lecture, re-examined a number of these sections prepared and stained in 1894, and I would now say that the histological appearances of the cord were quite normal. The microscopical evidence, therefore, still further confirms the diagnosis arrived at, and lends support to the opinions of those who hold that as yet, in typical cases of Landry's paralysis, no definite structural change of a characteristic kind, macroscopic or microscopic, has been demonstrated in the central nervous system.

We are now in a position to discuss briefly the pathology of the disease. In general terms it may be said that those who have investigated, either clinically or pathologically this, according to Gowers,[3] "mysterious disease," adopt one or other of two views as to its pathological nature. First, there are those who believe that the affection is caused by a primary, though it may be microscopical lesion of the nervous system, central or peripheral. Second, there are the observers who assert that no primary lesion can be demonstrated in the nervous system, and that the disease is essentially a toxæmia, in which the poison has a selective action, in virtue of which complete muscular paralysis may be induced.

The most important contributions in support of the first view that I have been able to consult are those of Pitres and Vaillard,[6] and of Eisenlohr. The former observers examined histologically the central nervous system and the peripheral nerves in a case occurring during convalescence from typhoid fever. They found microscopical changes in the peripheral nerves, but none in the brain or spinal cord. They believe that the disease is due to a lesion of the peripheral nerves, and they do not accept the opinion advanced by certain German observers, that the basis of the disease is a "diffuse parenchymatous myelitis."

Eisenlohr,[5] on the other hand, upon examining the brain and cord in a case of acute ascending paralysis, found microscopical lesions in various parts of the cerebro-spinal axis. He therefore could not agree with his countrymen Westphal and Baumgarten, or with the French school generally, that no central lesion of the nervous system could ever be found. This could not be laid down as an axiom in the definition of Landry's disease. He has since discovered in cases of this disease micrococci of various kinds in the peripheral nerves and their terminal filaments, as well as in the spinal cord, where they appeared to have set up an acute myelitic process.[4]

Among those who believe that Landry's paralysis is due to a toxæmia, and from this point of view is thus allied to such diseases as diphtheritic paralysis, paralytic rabies, &c., may be included Westphal,[4] Baumgarten,[4] Gowers,[3] and Dixon Mann.[7] In support of this view of the pathology, it may be mentioned that Westphal has described an enlargement of the spleen as occurring in cases of Landry's disease observed by him, and it has also been asserted that in some cases enlargement of the lymphatic glands has been present. Baumgarten has published a case in which he found many rods like those of the bacilli of splenic fever in the spinal cord, and Centanni[4] discovered a peculiar bacillus in moderate numbers in the spinal cord and in great numbers in the peripheral nerves, constituting a "neuromycosis." Gowers thinks that just as curare paralyses the lower segment of the spinal motor path, *i.e.*, the muscular nerve-endings, so some poisonous agent may in Landry's paralysis act at the termination of the upper segment of the motor path in the anterior cornua. Of course in the present state of our knowledge an opinion of this kind must largely be a matter of inference, and for a masterly exposition of the argument in favour of the doctrine that Landry's disease is due to a selective poison, I cannot do better than refer you to Dr. Dixon Mann's paper in the *Medical Chronicle* for 1887. He does not think that it is necessary to presuppose the presence of micro-organisms as factors in the production of the poison, as it may possibly be of autogenic origin. With regard to the precise locality on which the poisonous substance acts, he infers it to be situated in the grey matter of the cord itself, between the anterior and the posterior cornua. It is also assumed that the distance from the motor cells of the cortex of the nerve fibrils in the sacral and lumbar regions of the cord, from which the muscles of the lower limbs are innervated may be the reason why these muscles are the first to be paralysed.

Viewed in the light of this short discussion of the pathology of Landry's paralysis, I think it may be admitted that so far as it goes the investigation of the two cases I have now described lends support to the theory of toxæmia. Personally, indeed, I have great difficulty in arriving at any other conclusion from the facts observed. The whole clinical course of Mrs. M'C.'s case was such, as from the first to force upon us a conviction of the possibility of a morbific poison being at work in the production of the symptoms. The preliminary malaise with its slight febrile reaction, the presence of rose-coloured spots on the abdomen during the first few days of the paralysis, and the profuse sweating throughout all pointed in this direction. In Dr. M'Vail's case the *post-mortem* appearances were such as might have been produced by a poisonous alkaloid, and the fact that a careful inspection of the gastro-intestinal canal and its contents was made at the autopsy, clearly indicates that such a possibility was prominently before our minds in connection with it. Further than this, our study of the cases does not permit us to go.

The prognosis of Landry's paralysis is always admittedly grave, although cases of recovery after longer or shorter intervals are on record. With regard to treatment, I am sorry that I can add nothing to the remarks I have already made in the course of this lecture.

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APROSEXIA, CONVULSIONS AND ADENITIS, DEPENDENT ON PATHOLOGICAL CHANGES IN THE FAUCIAL, LINGUAL, AND PHARYNGEAL TONSILS.[1]

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Of late years, medical periodical literature has contained numerous articles on post-nasal adenoids and the lingual tonsil, and the average reader, eager for instruction, rather than amusement, must have concluded, after their perusal, that in hypertrophy of the pharyngeal and lingual glands was to be found the primary cause of almost every form of ill-health. Far short of such extremes, however, there are many most important facts associated with the presence of enlargement of the gland-tissue distributed over the pharyngeal wall and the base of the tongue, worthy of the serious consideration of the medical profession generally.

To fully appreciate the significance of many of the pathological changes which occur, and particularly those to be spoken of to-night, as well as the symptoms to which they give rise, it will be of advantage to enquire, in the first place, into the nature and physiological position in the economy of the various tonsils.

Situated between the faucial pillars on each side is an aggregation of compound follicular glands, known to all as *the* tonsils. These from time immemorial have been recognised as structures, which in certain individuals called for the frequent attention of the medical practitioner, though considerable uncertainty existed regarding their function.

In addition to those tonsils there are other collections of gland tissue of very similar structure, situated on the posterior aspect of the tongue, and on the walls and roof of the naso-pharynx. The presence of this tonsillar tissue in those localities has long been recognised by anatomists, though physiologists have said little of it but what was conjectural, and surgeons, until lately, went a step further and ignored it.

The mucosa of the naso-pharynx is infiltrated with diffuse adenoid tissue along with many lymphoid follicles. In the middle line, and near the vault of the pharynx, there is a collection of this lymphoid tissue forming a more or less prominent irregular mass, known as Luschka's or the pharyngeal tonsil.

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[1] Read at a meeting of the Medico-Chirurgical Society of Glasgow, 22nd November, 1895.

Again, over that portion of the tongue posterior to the line of the circumvallate papillæ, the region called by Wingrave the "pharyngo glossus," there is a large supply of retiform or lymphoid tissue. This, loosely imbedded in the sub-mucous tissue, is at numerous points collected into dense nodular masses to form follicular glands or lymphoid follicles, the aggregation of which is now frequently referred to as the lingual tonsil.

The part which the faucial tonsils play in the economy has been variously described. Earlier investigators considered that, previous to birth, they lay in contact, and so closed the pharyngeal cavity against the entrance of amnionic fluid: while later physiologists looked upon them as glands for the secretion of fluid to lubricate the bolus of food on its way to the gullet. More careful examination, however, has shown that the tonsils, in a state of health, have a much more important *rôle* than is implied in either of those statements.

Tonsils are structurally similar to ordinary lymphatic glands, though their covering and immediate surroundings differ from such glands.

An ordinary lymphatic gland is situated in the course of a lymph-stream, and is in free communication with absorbent lymphatic vessels which bring the necessary supplies to the gland for the manufacture of leucocytes, which in turn pass from the gland by an efferent vessel to enter the general circulation.

The faucial tonsils, on the other hand, are superficial and isolated; and though they have no large afferent vessel such as the typical lymphatic gland possesses, there are numerous small lymphatic vessels which gather in the fluids absorbed by the buccal and faucial mucous membrane in the immediate neighbourhood of the tonsils, and these pass into the tonsil and may be considered to take the place of the main vessel of the typical lymphatic gland.

Then, again, although lymphatics communicating with large lymph spaces close by, exist in the neighbourhood of the faucial tonsils, yet no connection has yet been traced between these lymphatics or the lymph spaces and the tonsils or their follicles. Thus there is no efferent lymphatic vessel to be found, and yet these tonsils undoubtedly manufacture leucocytes. The leucocytes formed here pass out of the tonsils in large numbers, and may be found over the surface or in the crypts. They pass out along with the somewhat viscid tonsillar section, a fluid which is endowed with highly amylolytic properties, to mix with and very possibly to aid in the digestion of the bolus and go with it to the stomach.

In connection with this point, it may be interesting to draw attention to the fact that children, in whom in a state of health leucocyte forming glands are most active, are frequently, when the tonsils are hypertrophied, the subject of digestive disturbances, possibly from alterations in the nature of the tonsillar secretion.

Unlike the faucial tonsils, the lingual and pharyngeal tonsils have a free lymphatic connection.

The lymphatics communicating with the gland tissue at the base of the tongue are mainly directed backwards, and after passing through some of the small lingual glands join the deep cervical glands in the neighbourhood of the bifurcation of the common carotid artery.

Again, the lymphatics connected with the covering mucous membrane of, and with the gland tissue in the pharynx, are abundant. Those from the upper part of the cavity are joined by lymphatic vessels from the nose and the superior part of the soft palate, and pass backwards to a gland near the skull between the pharynx and the prevertebral muscles. The lymphatics from the lower part of the pharynx pass out with the superior laryngeal lymphatic vessels, and enter the glands about the bifurcation of the common carotid artery.

The first important point in which those structures differ from each other, is that the faucial tonsils have no direct communication with the general lymphatic system, while the pharyngeal and lingual tonsils have a very distinct, and in the case of the latter, a very free lymphatic connection.

The importance of this anatomical difference is great, and is manifested in the consequences following absorption of irritant or poisonous materials.

In health some of the products of salivary digestion, as well as excessive buccal, nasal, and pharyngeal secretions, are absorbed by these compound glands. What the faucial tonsils absorb they absorb for their own purposes, and should poisonous products be taken up they rarely go further, but are here destroyed. Thus, in addition to their leucocyte forming function, the faucial tonsils may be looked upon as destructors of material inimical to the well-being of the organism.

What is absorbed by the pharyngeal and the lingual gland-tissue passes readily into the general lymph stream; and should the fluids absorbed contain any products of decomposition or other poisonous material, or germs of disease, these are apt to be passed on *via* the lymph stream to the nearest lymphatic glands.

Hypertrophy of those gland structures is the pathological condition most frequently brought to our notice, but while hypertrophy of the faucial and pharyngeal tonsils is commonly met with in children, hypertrophy of the lingual tonsil is rare in children. The latter usually occurs in young adult life when the pharyngeal tonsil is beginning to undergo spontaneous degeneration. The primary symptoms associated with hypertrophy of the faucial, pharyngeal, and lingual tonsils are for the most part dependent on obstruction, and may be summed up as interference with respiration; difficulties in deglutition; impairment of hearing; and changes in speech; all of which are well known to, and have been observed by every doctor here.

Other secondary changes follow in time, those most widely known being imperfect development of the chest; absence of facial expression, or the features assuming a cast denoting stupidity, and impaired cerebration.

To-night I wish to speak in detail of the latter (impaired cerebration), as well as of certain reflex phenomena and of adenitis, which may occur as the result of pathological changes in the gland tissue under consideration, and which have not always that attention paid to them which their importance deserves.

APROSEXIA.

Guye, of Amsterdam, first called attention to the impairment of the cerebral function due to disorders of the nose and naso-pharynx. He found that headache was frequently the result of nasal obstruction, and next in frequency from the same cause was the inability to fix the attention on any definite more or less abstract subject. This latter condition or symptom he called aprosexia. His explanation of this cerebral symptom of exhaustion as resulting from nasal disorders is as follows:—"Cerebral exhaustion must be the consequence of one of two causes, either the nutrient matter which has to repair the loss produced by the function of the brain is not yet sufficiently procured or assimilated, or the products of the 'tissue-change' which have to be eliminated, are incompletely removed. This removal will, according to physiological principles, have to take place partly at least by means of the lymph vessels; and in this respect we must point to the fact found by Axel-Key and Retzius, that large lymph vessels leave the cerebral cavity together with the fibres of the olfactory nerve. It is highly probable that structural changes in the nasal mucous membrane, and especially such as will exert pressure on the lymphatics, will impair or prevent the current of the cerebral lymph through the nasal mucous membrane. The retention of the products of the chemical processes in the tissues of the brain will lead to results which we may expect to be the same as those of physiological exhaustion, that is, of fatigue."

I have already alluded to the vacant appearance of the face in those the subjects of post-nasal adenoids, who are of necessity "mouth-breathers," but in addition to the look of stupidity which they wear, the children are usually stupid and backward in everything calling for mental effort, and aprosexia is a marked feature in most cases. Ferrier says that intelligence is proportionate to the development of attention, and it is also proportionate to the development of the frontal lobes. The frontal lobes are imperfectly developed in idiots, whose power of attention is very weak; and removal of the frontal lobes does not induce motor paralysis, but merely mental degeneration resulting in loss of attention. Now, anything interfering with the due nourishment of the frontal lobes will interfere with their function, and Guye's theory regarding the mechanical obstruction to the exit of waste material from the frontal region of the brain may, as it is the simplest, be the true explanation. Where, however, this mechanical obstruction, causing lymph-stasis, has existed for years, would we not expect organic changes in the brain to result? Reasoning from symptoms we must conclude that this does not occur, for almost immediately after the complete removal of post-nasal adenoids, even in cases of some years' standing, aprosexia becomes a thing of the past. In illustration of this important fact, one of Dr. Guye's own cases, the first in his original communication, may be quoted. "On examination I found complete nasal obstruction, and the boy, who had been to school for a year, had not been able to learn more than the first three letters of the alphabet. I removed a mass of adenoid tumours from the naso-pharyngeal cavity, and when his father brought him again, a week later, he told me that his son had learned the whole alphabet in that week."

During a recent conversation on this subject, Dr. Fraser of Paisley directed my attention to a psychologist's explanation of the mouth-breather's inability to fix his attention, referring me specially to Ribot's monograph on the "Psychology of

Attention." The general mechanism of attention is motory, and in the particular case of voluntary attention it chiefly consists of an action of inhibition. Everyone knows by experience that voluntary attention is always accompanied by a feeling of effort, which bears a direct proportion to the duration of the state and the difficulty of maintaining it. If this feeling of effort be carefully analysed, it will be found that it coincides with a fixation of the muscles of the chest, a closure of the glottis, and an active contraction of the muscles of respiration. During voluntary attention, which is a momentary state of the mind, respiration is suppressed or inhibited. Where, however, respiratory difficulties are present, the ability to fix the attention is difficult or impossible, according to the degree of obstruction, because there is not that reserve of air in the lungs, necessary for purposes of the economy, to permit of a period of inhibition or short cessation of the respiratory act. The removal of the post-nasal obstruction, by permitting of free respiration, renders the inhibitory action, necessary to voluntary attention, possible.

Much more might be said from the psychologist's standpoint, but if I have made clear the mechanism of voluntary attention, and how it becomes impossible when the nares are obstructed, I have said enough. Guye's theory is that which is generally accepted, but if interference with the lymphatic circulation was wholly responsible for this symptom, it should, reasoning from the results of lymph-stasis seen elsewhere, result in organic changes, which, as has been said, do not appear to occur even in cases of long standing. From the rapidity with which the power to give attention returns after the respiratory tract has been made free, I am inclined to consider the psychological explanation as the more important.

CONVULSIVE SEIZURES.

During the past twelve months I have seen, with some of my colleagues at the Western Infirmary and the Royal Hospital for Sick Children, in all ten children the subjects of epileptiform seizures, each of whom had hypertrophy of the pharyngeal tonsil, with, in some of the cases, hypertrophy of the lingual tonsil as well. Their ages ranged from nine to fourteen years, they all had become subject to the attacks within a few months only of their appearance at Hospital, and in the majority of cases the attacks occurred at night. There is not time to permit of details being given to-night, but I may say that of four cases operated upon, one has had no seizure since—now an interval of some months; another has had one seizure only within two months, while formerly she had several each week. Of the other two who were quite recently operated upon, one now breathes quietly and easily during sleep, and the mother thinks the fits are less frequent and of shorter duration, and the fourth has not reported herself since operation.

The mechanism of an epileptic seizure was described by Marshall Hall as consisting of two processes. There is the excitation of a sensory nerve, or direct central excitation, which gives rise *first* to reflex spasm of the muscles of the neck causing compression of the cervical veins with consequent comatose symptoms, and *secondly* to a reflex tonic spasm of the muscles of the larynx closing the rima glottides (laryngismus), and causing asphyxia with consequent convulsions. In other words, the condition of unconsciousness is ascribed to venous engorgement, and the convulsions to general asphyxia. Kussmaul and Tenner, however, in their investigations concerning the pathology of epilepsy, showed that occlusion of the larynx alone is capable of producing coma and convulsions, and consequently they refuse to accept the first portion of Marshall Hall's theory.

Quite recently I had an interesting demonstration of this mechanism—a convulsive seizure caused by a sudden obstruction of the wind-pipe. The patient was a child, 3 years old, on whom I had performed thyrotomy for the removal of numerous papillomatous growths some time previously. On the occasion in question, chloroform was being administered by Dr. Hay, House Surgeon, Royal Hospital for Sick Children, preparatory to the withdrawal of the tube and closure of the wound in the larynx and trachea. The tube had been removed, the child was fairly deeply under chloroform, when respiration ceased, his lips gradually became livid, the eyeballs turned upwards, the head turned in a jerky fashion towards the left, the muscles of the face and limbs became rigid (tonic spasm), and appearances pointed to the imminence of general convulsions. The tracheal tube was then reintroduced. Immediately on its introduction, a quantity of tough mucus, which had very thoroughly blocked the trachea, was expelled, and the twitchings of the head and rigidity of the muscles at once ceased, and the lividity quickly disappeared.

Now, Sir B. W. Richardson, in the *Asclepiad* (1887), refers to a case closely allied to those under discussion, the recounting of which may assist in making clear the contention that the epileptiform seizure in several such cases is the result of new growths in the pharyngo-nasal space. The patient, a lady, was the subject of epileptic attacks caused by a large mucous polypus in the post-nasal space, the removal of which terminated the seizures. It had given rise to none of the usual signs of obstruction, and had been wholly overlooked by the medical gentlemen consulted by the patient. She stated that the seizures were preceded by something dropping into the larynx, resulting in a feeling of something having gone down the wrong way. This was, no doubt, fluid exuding from the polypus dropping into the larynx, the foreign intrusion giving rise to spasm and asphyxia.

Where the naso-pharynx is occupied by hypertrophied gland tissue, the secretion is excessive, and is frequently retained in considerable quantities in the post-nasal space, from which it may suddenly escape on change of position of the patient. In its descent it might readily produce spasm of the larynx, and this would be more readily followed by general convulsions in a child so affected, than in one whose upper respiratory tract is free, on account of the constant inefficient äeration of the blood in the former.

A graphic description of the seizure and the method of its relief was given to me by the mother of one of those cases, a child, aged ten, under the care of Dr. R. M. Buchanan. Within a few minutes, she said, of the child putting her head on the pillow at night, she has a seizure, the symptoms of which are stiffening and stretching of arms and legs, slight twitching of the head, which gradually becomes bent forwards, accompanied by a gradually increasing lividity of the face. The child fears to go to bed on account of those seizures, and yet, if anyone is near, the attack may be checked by pouring some cold water into her mouth. As soon as the cold water enters the mouth she takes a long inspiration and she awakes —the spasm of the glottis apparently being overcome by the stimulus of the cold so applied.

Where the lingual tonsil is hypertrophied, and lies, as it frequently does, in contact with the anterior aspect of the epiglottis—"imprisonment of the epiglottis"—the liability to such seizures is, I think, increased.

ADENITIS.

And, lastly, I desire to draw your attention to-night to the association of enlarged glands in the neck with pathological changes in the gland tissue in the buccal and pharyngeal cavities.

As a result of my own experience, I would assert that hypertrophy of the faucial, lingual, and pharyngeal tonsils may exist, and may be so pronounced as to give rise to those symptoms dependent on obstruction in the upper respiratory tract, without any neighbouring glands being affected. But, on the other hand, where there is enlargement of the submaxillary and cervical glands in children and in young adults, distinct swelling of the tonsillar tissue in the naso-pharynx and at the base of the tongue will be found in the majority.

From the former of these statements we may reason that hypertrophy *per se* does not necessarily cause swelling of the associated lymphatic glands. But hypertrophy predisposes to conditions which lead up to inflammation of the lymphatic glands communicating with these regions. The surface of the hypertrophied tissue is rough and irregular, presenting pits and prominences, and these surface irregularities favour the retention of particles of food and buccal and nasal secretions, along with foreign substances and numerous micro-organisms, in the neighbourhood of highly absorbent tissue by which these deleterious materials are readily taken up and passed on to the nearest lymphatic glands.

From the description I gave of the isolated position of the faucial tonsils, you will readily believe me when I say that we rarely, if ever, have enlargement of the neighbouring lymphatic glands dependent on affections of those tonsils. The faucial tonsils may be highly inflamed, they may have been inoculated with septic material, or they may be the site of malignant disease (primary) for a considerable time without there being any affection of the cervical or submaxillary glands as a consequence.

Absorption from the base of the tongue, on the other hand, takes place most readily; and if the material absorbed is contaminated with irritants or pathogenic micro-organisms, their absorption is manifested by enlargement of the glands near the bifurcation of the carotid. Inflammation of the dorsum of the tongue, such as may follow on the prick of a fish bone, or which may result from the presence of irritating or decomposing materials lodged in the hollows on the dorsum, is quickly followed by inflammation of those glands; and the remote results in each case will depend largely on the nature of the material absorbed.

The gland tissue in the naso-pharyngeal cavity occupies an intermediate position, absorption of foreign matters taking place much less readily from this surface than from the surface of the tongue. In great part, this might be explained by position—the pharyngeal gland tissue being less exposed to contact with materials introduced from without; and the pharyngeal surface being on the perpendicular, substances when present, and which, if retained on the surface, might be absorbed to the detriment of the lymphatic glands, have not here the facilities for lodgment presented over the surface of the pharyngo-glossus.

Tubercular affections of the tongue, the fauces, and the pharynx are comparatively rare, and yet the tubercular bacillus, dust borne or otherwise introduced, may be found on the surface of those parts in many individuals. Further, in a not inconsiderable number of cases, as has been reported by several observers, and recently by Dr. Nicoll, tubercle bacilli may be found imbedded in the substance of the adenoid tissue, where neither macroscopically nor microscopically could other evidences of tubercular disease be detected. The absorbent gland tissue, over the tongue and in the naso-pharynx, in the performance of its normal function may take up such micro-organisms; and in this way tubercular affections of the lymphatic glands in communication with these regions may occur in those who, as far as can be ascertained, are free from inherited tubercular tendencies, as well as in those of "scrofulous diathesis."

In all cases where the glands in the neck are enlarged, whether the swellings are painful or otherwise (acute or chronic enlargement), the condition of that part of the tongue posterior to the line of the circumvallate papillæ should be specially observed, and if any condition exists, favouring the retention of secretions or foreign material, it should be as far as possible removed and the surface made healthy. When roughness due to increase in the bulk of the lingual tonsil exists there will also, in all probability, be hypertrophy of the naso-pharyngeal adenoid tissue making its presence known particularly, by interference with nasal respiration, or by implicating hearing. But whether those grosser symptoms be present or not, this tissue should be thoroughly removed as soon as its presence is detected.

The tongue should in all those cases be so treated as to render its surface clean, firm, and healthy; and the naso-pharynx, so that a perfectly smooth surface will result.

THE ÆTIOLOGY AND TREATMENT OF CHRONIC ENLARGEMENTS OF LYMPHATIC GLANDS, WITH SPECIAL REFERENCE TO THOSE OF THE NECK.

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IF there is one fact which becomes more apparent than others in a study of the affections of lymph glands, it is the rarity of the occurrence of primary disease in such glands.

ACUTE, or pyogenic enlargement (whether progressing to actual suppuration or ending in resolution), is invariably due to some pyogenic lesion in the peripheral area draining into the glands affected. So well recognised is this that the statement may be said to be accepted as a surgical axiom.

In regard to the various CHRONIC enlargements, opinion is not so unanimous. One group, comparatively a very small one—viz., the *lymphadenoma* group (including both the leukæmic and non-leukæmic forms) is possibly an example of primary disease of lymph glands, and the cases of so-called *lymphosarcoma* recorded from time to time may or may not yet constitute another small primary group, or prove merely members of the lymphadenoma group.

Two other groups are clearly secondary—viz., *carcinomatous* glands to cancer in the periphery, and *syphilitic* glands to chancre, secondary eruptions and inflammations of skin and mucous membrane, and gummatous swellings and ulcers in various parts of the peripheral area.

Two groups of cases of chronic enlargements remain. These are *simple* chronic enlargement on the one hand, and *tubercular* glands on the other. How far these two groups overlap is an open question. There can be no doubt that there occur gland enlargements persisting for months without marked change, directly dependent on chronic affections in the periphery, such as chronic eczema or prurigo, and disappearing when the peripheral affection has ceased, and not till then, and disappearing ultimately without having shown any tendency to either acute suppuration or tubercular invasion. On the other hand, cases every now and then occur in which glands, the seat of a chronic enlargement apparently simple, ultimately become the seat of an enlargement clearly tubercular. To all intents, however, the latter are members of the tubercular group.

The more especial purpose of this paper is the consideration of the group of tubercular enlargements of glands, frequently still called "scrofulous" or "strumous" enlargements. This group is by far the largest of all the groups of chronic enlargements of glands, and of the cases of it met in surgical practice 96 per cent occur in the neck. (This statement is based on a record of cases seen in the Dispensaries of the Western Infirmary and Children's Hospital over a period of three years, and, of course, takes no cognisance of the internal—mesenteric and mediastinal—glands.)

The writer's attention has been more or less continuously directed to cases of disease of lymphatic glands for over eight years. During that period a marked change has occurred in the views of surgeons and pathologists as to the interpretation of the term "scrofula," and so decided is the tendency to drop the use of it altogether that it is not necessary here to discuss the question at length. It will suffice to briefly state the view now gaining acceptance—viz., that "scrofula" is a term denoting a *diathesis*—*i.e.*, a condition of tissues and constitution, usually hereditary, predisposing to the development of tubercular *disease*, and not recognisable by any signs or symptoms in any individual, though, from a knowledge of his family history, its existence may be strongly suspected in him, and is undoubtedly present in many instances. (It is, of course, obvious that the evidences of scrofula still given in some of our text-books—granular conjunctivitis, corneal ulcers and opacities, chronic rhinitis and ozœna, thick fissured upper lip, chronic otorrhœa, enlarged glands, pallor, &c., are signs, not of diathesis, but of disease, present or past, the disease being tubercular in the majority of cases. Also, it need hardly be pointed out that the classification of the scrofulous types of individual, still quoted in our leading surgical treatise, is nothing more or less than a classification, on broad lines, of the types of the British populace.)

In 1882 Frederick Treves, in his monograph on *Scrofula and its Gland Diseases*, while he regards scrofula as a "milder form or stage of tuberculosis," states his opinion that scrofulous disease in glands is rarely primary, but is due to the presence of some form of lesion in the periphery. These lesions he enumerates as decayed teeth, eruptions on head and face, especially impetigo of the scalp, ulcers of the skin, all forms of stomatitis, thrush, gingivitis, glossitis, coryza, ozœna, and affections of the tonsils and pharynx. Of all these causes of gland enlargement, he regards affections of the lymphoid tissues of tonsil, pharynx, and conjunctiva as the most common, these affections being of a catarrhal or suppurative character.

With a knowledge of Mr. Treves's views, and of Koch's subsequent demonstration of tubercle bacillus in tubercular glands, the writer began in 1886, and has carried on till now, an investigation of all cases of enlargement of lymph glands coming under his observation. This investigation speedily limited itself to a clinical and microscopic study of the glandular swellings of the neck, chiefly of the necks of children and adolescents, and of any possible peripheral causes of such swellings which might be discovered. For invaluable aid in this work the writer has to thank the patience and skill of his friend, Mr. F. H. Riley, who gave, during several years, a great deal of time to staining and cultivating processes in connection with the tissues submitted to him.

At an early period of the investigation, the conclusion became unavoidable that the only cases of possibly primary disease of lymphatic glands are the comparatively rare cases of lymphadenoma (and lymphosarcoma). These, therefore, were excluded. Next, of the cases of secondary diseases, the two groups of cancerous glands and of syphilitic glands were excluded, as being easy of diagnosis and definitely secondary to some obvious lesion in the periphery. There remained a large number of cases of glandular swellings in the neck of more or less various characters, but which had one feature in common—viz., a tendency to ultimately soften or "suppurate."

In investigating a series of nearly five hundred cases, the following conclusions have been reached:—

1. "Decayed teeth" do not give rise to disease in lymph glands. Caries of the teeth no more affects the glands of the neck than does caries of carpus or tarsus affect the glands of the axilla or groin. Both pyogenic and tubercular disease of the teeth and alveoli, when appearing externally, present as swellings in close connection with the jaw and its periosteum, often with caries or necrosis of the jaw. These swellings, rupturing through the skin or mucous membrane, leave sinuses discharging either pus or tubercular *débris* through which the probe frequently detects bare bone. But the glands are only rarely affected, and, in the few cases in which they are, the affection seems to be secondary, not to the disease in the teeth, but to the sinus, or to some deep ulceration of the gum around the tooth; just as in watching cases of disease of lymph glands secondary to caries of the limb bones (less than 4 per cent of the total) it is found that enlargement of the glands occurs

after the subcutaneous tissue is the seat of abscess or sinus over the carious bone. When glands are infected in this way from tooth disease, the glandular enlargement appears primarily in the submaxillary lymph glands, not in the deep carotid glands.

2. Skin eruptions of face and scalp, like skin eruptions of trunk and limbs, readily secondarily affect lymph glands, but the affection of the glands is a strictly pyogenic one, and in no sense tubercular or strumous. Impetigo, boils, and eczema of face and scalp, inflammatory conditions of the scalp due to the scratching induced by pediculi, and wounds of scalp and face all readily affect the lymph glands of the neck, but three facts are very clear in regard to these glands:—(*a*) They tend to run a more or less acute and suppurative course, and disappear at once, and only when the peripheral disease is cured. (*b*) They yield pus or pyogenic cocci only—not tubercle bacilli. (*c*) The glands primarily affected are the *superficial* glands of the suboccipital, parotid, and submaxillary regions, though, later on, extension to the superficial glands along the external jugular vein and in the posterior triangle may occur, and, of course, ultimately, in many cases, extension to the deep glands.

The fact that many glands of this class—*i. e.*, secondary in their enlargement to the occurrence of the skin affections named—do not run a typical acutely suppurative course does not invalidate this statement. Pyogenic affections of glands, like pyogenic affections of other tissues, not infrequently resolve without suppuration, in not a few cases after running a more or less prolonged subacute or even chronic course.

(It will be observed that lupus is not included in the list of skin affections, nor are the chronic excoriations of nostrils and ears to be referred to below, nor the skin ulcers over carious portions of the skull bones.)

3. Thrush, aphthous stomatitis, and gingivitis do not appear to have any great tendency to affect the lymphatic glands, though on this point the writer would speak with some reserve, knowing that it is only in family practice or, possibly, on the medical side of a children's hospital that these affections can be adequately observed. In only one case of adenitis, apparently secondary to aphthous ulcers in the mouth, was he able to make an examination, and in this case the glandular abscess yielded a culture of cocci only.

It may be interesting to note, however, that the opinion formed on this point by the writer, though admittedly on a somewhat slender basis of observation, receives indirect support from the authority of Professor Coats who, in dealing with inflammatory affections of mouth and pharynx, says—"The mucous membrane of the mouth seems peculiarly resistant to external irritations, but here"—tonsils and pharynx—"these inflammatory manifestations occur with peculiar frequency."[1]

4. Acute follicular or suppurative tonsillitis and acute phlegmonous pharyngitis would seem readily to affect the deep lymphatic glands along the carotid sheath. The affection of the glands in these cases is acutely suppurative and very liable to perforate the gland capsules and extend a long way in the cellular tissue, giving rise in a number of cases to the serious condition to which has been given the name Ludowig's angina.

It will be observed that, in the writer's opinion, all of the foregoing peripheral affections which secondarily involve glands with any frequency produce in the glands a more or less acute suppurative inflammation, and not a tubercular or "strumous" affection. It was found, however, that cases of pyogenic glandular affections, while numerous enough, are outnumbered in the proportion of five to one by cases of glandular enlargement which do not show evidence of pyogenic nature, but present the characters of the classical chronic "scrofulous" glands, which in many instances ultimately become clearly tubercular. (This proportion is probably not the true one. Acute superficial glandular swellings are often dealt with by the lancet of the family doctor, or "poulticed to a head," and are not seen in hospital, while the chronic and deeper swellings are.)

The conclusions arrived at in regard to these chronic glands are as follows:—

I. They occur, in the first instance at least, in one group only—viz., the group of glands along the upper part of the carotid sheath, chiefly in the region of the bifurcation of the artery (though, of course, the mischief may subsequently extend to other and neighbouring glands). This statement embodies a rule which has three notable exceptions, referred to below—viz., the occurrence of clearly tubercular mischief in the superficial submaxillary and submental glands, in the superficial parotid glands, and in the preauricular gland.

II. In dissecting out these glands it is frequently found that the deepest glands of the group are to the mesial side, or to the posterior side, of the carotid sheath—*i.e.*, that the deepest glands involved are the post-pharyngeal. It need hardly be mentioned that these deep carotid and prevertebral glands are the glands to which the lymphatic vessels of the pharynx run.

III. Fully 70 per cent of such enlargements are bilateral, both sides of the neck being, sooner or later, affected.

IV. In the earlier stages of these glandular swellings in a certain number of cases the statement is made by the patient, or his parents, that the glands "come and go," always reappearing or increasing when the patient's "health is down." It is not difficult to ascertain, in many instances, that this depression of the health means that the patient has "caught cold"—that is to say, that the increase or reappearance of the glandular swelling is due to an attack, or an aggravation of naso-pharyngeal catarrh. (The foregoing statements, with what follows, apply to such chronic enlargements as are included in the old term "scrofulous" only. Cancerous glands, syphilitic glands, lymphadenomatous glands, and affections of the deep glands, secondary to affections of the superficial glands, have been specifically excluded.)

These four facts seem to clearly indicate that the source of the peripheral mischief is in the naso-pharyngeal mucous membrane. It appeared probable that repeated naso-pharyngeal catarrhs induced a chronic *simple* inflammatory enlargement of the neck glands, which increased and decreased with recurrences and disappearances of the catarrh; and that, while in a certain number of the cases the enlargement of the glands ultimately completely disappeared, in a larger number, where there was a predisposition to tubercle ("scrofulous diathesis"), the tubercle bacillus found in these glands damaged by recurrent chronic inflammatory attacks a nidus suited for its development, the result being tubercular disease of the glands. This view has been put forward by many writers on the subject.

The earlier examinations carried out by the writer seemed to bear out this idea; but greater care, or possibly increased familiarity with the work, before long showed that the theory was not entirely in accordance with the facts. For, in a certain number of cases where the deep carotid glands were excised at an early stage—at a stage when neither clinically nor macroscopically was there the slightest indication of tubercle—the presence of the tubercle bacillus in full activity was demonstrated by cultivation and by staining. That is to say, that a certain number of glands apparently the seat of a simple chronic inflammatory enlargement, resulting from recurring or chronic naso-pharyngeal catarrh, were found to be infected by active tubercular virus, the question thus being raised whether the increase of lymphoid cells or leucocytes causing the enlargement (this being the only pathological change found in the early stages of these enlargements) is not in reality the primary result of the activity of the tubercle bacillus, and quite independent of any previous "simple" inflammation.

Then, in examining the tonsils and adenoids removed (as being probable peripheral sources of the mischief in the glands), it was found that in a considerable number of cases these tissues contained tubercle bacilli; and, further, that these tissues not infrequently contained the bacilli where there was no evidence, either macroscopic or microscopic, of tubercular disease of the tissues (though in all cases the patients were otherwise tuberculous, being treated for tuberculous glands), the bacilli being found embedded in the tissues amongst the lymphoid cells and leucocytes of hypertrophied and catarrhal adenoid structures, side by side with other organisms of various kinds.

Stöhr,[2] and others since he wrote, have advanced the view that the function of lymphoid tissue (whether situated in tonsils, pharynx, nose, bronchus, or intestine) is absorption for scavenging purposes, and that, for this purpose, the lymphoid cells or leucocytes wander freely out through the epithelial layer into the mucus in the follicular recesses of the free surfaces. There they engulf various matters, and re-enter the meshes of the lymphoid tissue and pass to the lymphatic glands, thus carrying out a species of phagocytosis. If this be so, it is not difficult to account for the presence of tubercle bacilli, other organisms in the tonsils and postpharyngeal adenoid tissues. What was difficult to understand was the presence in otherwise healthy (*i.e.*, non-tubercular) tissues of tubercle bacilli, proved to be active both by cultivation and by their subsequent action in the lymphatic glands when transported there. Several considerations, however, helped to show that the fact observed is, after all, not in opposition to general laws. In the first place, it would seem to be the case that tuberculosis of the mesenteric glands is of very frequent occurrence apart from any disease in the intestine which can be recognised as tubercular, and yet absorption from the intestine must, almost of necessity, be the source of the mischief. Also, surgeons are familiar with the fact that a very minute prick from a needle may convey an active septic organism into the finger, and that the results may be the most trifling and transient irritation at the seat of puncture, with violent and wide-spread suppuration in the axillary glands. Whatever the explanation, the fact remains.

Having found this so, but having failed to arrive at any definite decision as to whether the bacilli in the lymphoid tissues were merely *en route* for the glands, or the active originators of changes in the lymphoid tissues, the writer began, in 1891, the systematic treatment of what appeared clearly to be the primary source of mischief in these cases of chronic or intermittent enlargement of the deep glands of the neck, carrying out the treatment of the peripheral region previously to, or concurrently with, that of the glands. For this purpose, he provided himself with the necessary instruments, being so far forced into a position he has no wish to occupy, that of a throat specialist in such cases, by the action of throat specialists, who, naturally perhaps, would seem to view affections of the tonsils and adenoids and of the mucous covering of the turbinates from a different standpoint—viz., that of the presence or absence of mechanical effects on swallowing, hearing, and breathing of swelling of these regions, and who have repeatedly returned cases to him with the report that no adenoids were present, that the tonsils were not large enough to require removal, and that the child's nasal breathing was perfectly free; and it must be admitted that in many of the cases the tonsils were not particularly large, and that there was no such swelling of the pharyngeal tonsil, or of the nasal mucous membrane, as to impede breathing.

The treatment has been carried out in a large number of cases during the past four years. The following are the main points:—

(*a*) In cases of *unilateral* tubercular glands or of chronic glands likely to prove tubercular), the primary lesion may be (1) chronic (tubercular?) affections of the eye (chronic conjunctivitis, corneal ulcers, &c.), in which case the affection of the preauricular gland (situated on the cheek just in front of the tragus), in addition to that of the glands of the neck, will often clearly indicate the source of mischief; (2) chronic otitis, usually evidenced by otorrhœa, perforation of the membrane, and deafness. That chronic otitis is much more frequently tubercular than has been generally supposed, was pointed out by Dr. Barr in 1881 and again last year,[3] and is clearly shown by Professor Macewen in his lately published work,[4] and in his more recent paper read in the Otological Section of the British Medical Association (August, 1895), in which he makes the following interesting statement:—"Tubercle of the middle ear . . . has not yet received the attention it deserves. It is one of the less obtrusive forms of middle ear disease, being often accompanied by very slight mucoid discharge;" (3) mischief in, or absorption from, the nasopharynx.

Cases of unilateral tubercular disease are, however, much less common than cases of bilateral disease. In cases of disease in eye or ear appropriate treatment must be adopted. In the case of unilateral glands due to naso-pharyngeal mischief the latter is treated as in cases of bilateral gland disease.

(*b*) Cases of *bilateral* tubercular glands, as already stated, have been found to constitute over 70 per cent of the whole, and when to these are added the last mentioned group of unilateral glands, the number of cases of tubercular glands, or of glands which are likely to become tubercular, secondary to a primary source in the naso-pharynx, may be put at something over 80 per cent of the whole.

In some cases disease in all three regions—eye, ear, and pharynx—is present. In others, disease exists in two of the regions.

In all cases of bilateral chronic enlargement of glands in the neck, before excision of the glands is carried out, the tonsils are removed, the entire naso-pharynx scraped, and the mucous membrane of the lower turbinates cauterised or painted with some strong caustic application. The treatment of the pharynx and nostrils is, in many instances, repeated at intervals of a few weeks, both before and after excision of the glands. The tonsils are removed whether they are enlarged or not, being excised, when too small for the guillotine, by the use of a probe-pointed knife or curved scissors. For the excision of these small tonsils some such instrument as Dr. A. B. Kelly's tonsil punch should prove very useful. The nostrils and naso-pharynx are treated whether any obvious adenoids or turbinate hypertrophy be found or not, though it may be said that in most cases some degree of enlargement of the tonsils, adenoid tissues, and turbinate mucous membranes is present, and in many cases the degree is considerable, giving rise to the typical oral breathing, nasal discharge, altered voice, and deafness. In some of the worst cases there is ulceration of the naso-pharynx, caries of the ethmoid, and ozœna.

In the Children's Hospital Dispensary, where a large number of such cases are seen, the writer has frequently combined the two operations in order to economise time—*i. e.*, excised the glands and treated the naso-pharynx at the same time. The glands are removed, and a temporary dressing applied to the wounds in the neck. A towel is tightly pinned round the patient's forehead and occiput to protect the hair from blood. The head is dropped over the end of the table, the patient being on his back, and the chloroform withdrawn. The operator, having a leather guard on his forefinger, opens the patient's mouth with a gag, which is then held by the house surgeon, while the operator excises the tonsils, and then scrapes the whole naso-pharyngeal wall with his finger nail, with an artificial nail, or with Gottstein's knife followed by the nail. Finally, when the hæmorrhage has partly ceased, the turbinates are painted over with a strong solution of chromic acid by means of cotton wool on a properly constructed probe. While this combination of the two operations economises time, and obviates the necessity for a second administration of anæsthetic, it has probably one risk. In two cases the writer has seen suppuration in the neck wounds, apparently due to conveyance of sepsis along the lymphatic vessels from the raw surface created in the naso-pharynx. This risk is avoided by ablating the naso-pharyngeal lymphoid tissues two or three weeks earlier than the glands.

(*c*) In all cases the glands are carefully dissected out, for when the process has once started in a gland it is certain to go on for some time, independently of fresh peripheral provocation, and, further, it has the tendency to invade neighbouring glands. The object of the treatment of the peripheral region is less to benefit the glands already really tubercular, than to prevent involvement of fresh glands, and consequent recurrence of the trouble in the neck.

(*d*) Treatment of the general health is carried out on the usual lines.

(*e*) As stated above, the rule that tubercular enlargement of the neck glands occurs, in the first instance at least, in the deep glands on the upper part of the carotid sheath, has three exceptions. One of these, the enlargement of the preauricular gland, has been referred to. A second is the affection of the glands in the submaxillary and submental regions. These glands lie comparatively superficially, and it will be found that their tubercular affection is due to the chronic fissures, sores, and inflammations of the orifices of the nostrils, of the free margin of the upper lip, and, less often, of the angles of the mouth—all of which are the direct results of the chronic discharges trickling from the nostrils. These discharges are due to the unhealthy condition of the mucous membranes referred to, and the results are seen for some time after in the thick furrowed upper lip ("the strumous lip"), and in the smooth, hairless, cicatricial-looking nostril orifices, as well as in the tubercular glands below the chin and jaw. That the tubercular disease of these glands is directly due to these affections of the nostrils and lip is occasionally strikingly demonstrated by the occurrence of an area of subcutaneous tubercle under the skin of the cheek in front of the anterior edge of the masseter and below the level of the angle of the mouth. This area is felt as a firm patch, which first reddens the overlying skin and finally breaks through it, forming a typical tubercular ulcer. Its significance in the present connection is in the fact that it originates in the area of junction of the lymph vessels from the nostril, lip, and angle of mouth with the line of lymph vessels accompanying the facial vein, which lymphatics end in the submaxillary glands. The remaining exception to the rule stated above is the occurrence of tubercular disease in the superficial glands of the parotid region. This will be found to be due to excoriation and inflammation of the external auditory meatus and auricle caused by the flow of discharge of chronic otorrhœa.

These affections of nostrils, lip, and auricle, if persisting after the removal of the discharges, are treated by the application of an ointment containing mercury, salicylic acid, or iodoform.

(It is, of course, evident that the nose, pharynx, tonsils, Eustachian tubes, middle ears, lachrymal ducts, and conjunctivæ form one area of mucous and lymphoid tissues.)

Of the fact that the treatment described is the most satisfactory for the cases to which it has been applied, the writer has now no doubt.

It will be apparent that a pretty large question in pathology has been opened, and that this question is not as yet fully answered. The question is this—Is it the case that any or all of these chronic and recurrent swellings of naso-pharyngeal lymphoid tissues, with their accompanying catarrhal discharges and tubercular neck glands, are in reality tubercular affections?

Of course, it is obvious that more or less acute naso-pharyngeal catarrhs ("colds in the head"), which are in no sense tubercular, are common. But these have little tendency to affect the glands, or, in any case, to produce anything more than the most transient enlargements. Of the naso-pharyngeal catarrhs which do cause serious mischief in the glands, there would seem to be two classes, viz.—(1) those which cause chronic or tubercular gland disease, and (2) those which cause acute or suppurative gland disease. Of the latter the surgeon sees comparatively few, and these have been referred to as acute suppurative tonsillitis and acute phlegmonous pharyngitis, which produce acute suppurative inflammation of the cervical glands, occasionally ending in Ludowig's angina, but having nothing to do with tubercle. There is, however, another class of throat affections liable to produce more or less acute inflammation of the neck glands—viz., the naso-pharyngeal catarrhs of measles, scarlatina, &c. These are not seen by the surgeon, and it would go far to answering the question if a series of observations were made in such cases as to the presence of tubercle in the throat or gland tissues. The usual statements advanced of cases of chronic "strumous" glands following measles are all open to the most serious objections. Measles occurs just at the period of life when tubercular glands are also common, just as vaccination is performed at the peroid when various eruptions (congenital syphilis, eczema, often starting in the intertrigo of the urine-soaked thighs, lichen strophulosorum, &c.) are prone to develop; and there is possibly as much connection between vaccination and these rashes as between measles and "scrofulous" glands. Further, it is possible that in many of the cases quoted the tubercular glands were slowly developing unnoticed till the catarrh of measles added a pyogenic adenitis to the tubercular process, and thus brought the glands under observation.

In regard to the former class, that of chronic and recurrent naso-pharyngeal catarrhs, there would seem to be grounds (see below) for the opinion that it is possible, perhaps probable, that a number of such catarrhs may be tubercular. Without in any way attempting to dogmatise on what is a very difficult question, it is significant to recall the change in views which has lately taken place in regard to bones and joints, largely as the result of Senn's teaching. Not so many years ago surgeons had much to say of caries and of chronic pulpy and suppurative arthritis, as affections existing apart from tubercle. Now chronic softening or carious ostitis, and chronic pulpy or suppurative arthritis, unless obviously gummatous, are, as a matter of course, pronounced tubercular, and treated as such; and this notwithstanding the facts that in many cases cells indistinguishable from ordinary pus cells constitute the products of the morbid process, and that pyogenic cocci are very usually found side by side with, and often in far greater abundance than, the tubercle bacilli, where the diseased area has been exposed to external contamination, as is the case in the naso-pharynx. Further, it seems to be the case that physicians have now much less to say than formerly of various inflammatory and congestive conditions of the lung which ultimately become tubercular, the impression evidently having gained ground that many of these cases are tubercular in the first instance.

During the past few years the writer has frequently spoken with medical friends of what he had found in regard to the presence of tubercle bacilli in the tonsils and adenoids, and of his difficulties in regard to the true significance of it; and he has lately been indebted to two friends for references to the subject. In June of this year Dr. L. R. Sutherland gave him a reference to a paper by Dr. Dmochowski, published in 1891 in *Ziegler's Beiträge,*[5] on the presence of tubercle in the tonsils and follicular glands of the tongue in consumptives. In this paper the author states, as the result of his *post-mortem* examination of a number of cases of phthisis, that tubercular disease of the tonsils is, contrary to Virchow's dictum, very common. Further, that in many cases it is found to be present in typical form, *where neither clinical nor post-mortem macroscopic examination gave the slightest indication of its presence.* Further, that microscopic examination shows it to exist in the tonsils in two histological forms—(*a*) the ordinary typical form of tubercle; (*b*) a form in which the *tonsillar tissues exhibit the structure either of an ordinary inflammation or of a hypertrophy, with neither giant nor epithelioid cells*, but in which the bacilli can be stained in the tissues in enormous numbers, and are found in the lymph channels in the tonsil, and leading from the tonsil to the neck glands, in such numbers as to resemble a pure culture.

More recently than this, Drs. Jas. G. Connal and L. R. Sutherland both kindly sent references to a paper by Prof. Dieulafoy,[6] published (1895) in a French journal, and since reproduced in the *British Medical* and several other journals. Prof. Dieulafoy states that he has found in the tonsils and adenoids of a considerable number of persons *not suffering from phthisis* active tubercle bacilli, which, in his opinion, give rise in many cases to a form of masked or sluggish *tuberculosis, characterised by an increase of phagocytes and hypertrophy of the lymphoid tissues* (*with subsequent involvement of the cervical glands*), *and not by the formation of typical tubercles with giant and epithelioid cells.*

Prof. Dieulafoy, it seems from the discussion which followed his paper, undertook his investigations after hearing a paper read by Dr. Lermoyez to the Société Médicale des Hôpitaux of Paris, on 28th July, 1894, in which paper the author insisted, as the result of his observations, that there exist two forms of tuberculosis of the lymphoid tissues of the naso-pharynx—viz., (*a*) one easily recognised as tubercular infiltration and ulceration, and (*b*) another characterised by no special histological features of tubercle, and to be recognised only by staining the tubercle bacilli in the tissues. Prof. Dieulafoy was fortunately able to employ the method of inoculating guinea-pigs, and, as stated above, he obtained results which lead him to fully acquiesce in the views of Lermoyez.

Other references have since come to hand. Dr. J. P. Stewart, in the *British Medical Journal* for May, 1895, has described chronic enlargement of the neck glands, associated with tuberculosis of the tonsils where the tonsils exhibited to the naked eye no evidence of tubercle, but the characters merely of simple chronic enlargement. Dr. Dmochowski, also, has published a second paper dealing with the nares in which he has found a condition of matters similar to that which he has described in the tonsils.

To the writer these papers are extremely interesting, and place the question in so definite a position that it seemed not out of place to publish the conclusions he had reached after some work at part of the subject.

He would wish to say that, in his view, two questions remain distinct—viz., (1) the true significance of the presence of tubercle bacilli in the "hypertrophied" tonsillar and adenoid tissues of chronic naso-pharyngeal catarrhs; (2) the results of ablation of these tissues.

In regard to the *first* question, it is not yet clear that the changes found in these tissues are the result of the action of the tubercle bacilli present, and not of the various other organisms found in much greater abundance; for Dieulafoy's results merely establish the active virulence of the bacilli whose presence had previously been noted. In the cases examined by Mr. Riley and the writer, bacilli were never found in any like the numbers indicated by Dr. Dmochowski. This may have been due to their being scanty, or to the difficulty of staining them. Then the patients were otherwise tubercular. Finally, tubercle bacilli have been found in considerable numbers in the mouth and pharynx, and even in the respiratory tract in cases of perfectly normal individuals. For all these reasons it seemed impossible to reach any definite decision on the question, and the subject was pursued from the clinical side only.

As regards the *second* question, the writer has now, after several years' trial, little, if any, doubt that (*a*) in 80 per cent of chronic (ultimately tubercular) enlargements of deep glands in the neck the primary source of the mischief is in these "hypertrophied" and catarrhal naso-pharyngeal lymphoid tissues; (*b*) that in the ablation of these "hypertrophied" tissues lies the prevention of the occurrence and recurrence of tubercular disease in the glands of the neck; (*c*) that the surgeon in ablating these tissues need have no fears that he may be doing something which in the end may be really detrimental to his patient, viz., removing the patient's natural filters or protectors. These lymphoid tissues extend deeply in the thick, spongy, mucous membrane of the naso-pharynx, and, by any of the usual methods, only the exuberant "hypertrophied" portions are removed. In the tonsils also it is very rarely the case that complete removal is effected. The thickness of the mucous membrane, with its lymphoid tissues, is quickly restored after paring down—so much so that in many cases the ablation has to be repeated, sometimes more than once. And in the tonsil, also, there is considerable power of restoration of the tissue removed. Moreover, in these cases the diseased lymphoid tissues of the naso-pharynx (whether the disease ultimately prove tubercular or otherwise) are no longer the actual filters or barriers, these being found in the neck glands, already tubercular, and, if there is anything in the idea at all, it is an argument, not against ablating the lymphoid tissues, but against removing the glands, a point to which few, if any, will probably be inclined to push it. The propriety of applying the term "hypertrophy" to the enlargement of these lymphoid tissues in such cases may well be questioned. In the present state of our knowledge such a term as "chronic inflammatory swelling" would seem quite as likely to prove permanently appropriate. During the past few years the writer has both practised and taught these views.

One thing is much wanted—viz., a method of thoroughly applying iodoform to the nasal, naso-pharyngeal, and tonsillar regions from which lymphoid tissues have been removed, or, at other times, in order to destroy or inhibit organisms living in these tissues or in the lymphatic channels leading thence to the neck glands. The methods of insufflation, or of spraying in solutions, are of little use. These methods simply deposit the iodoform on the blood or mucus on the surface, whence a little of it is probably absorbed into the tissues, while most of it is either expectorated or swallowed.

What is required is a method of rubbing the powder into the tissues, and to the accomplishment of this the natural conformation of the region offers considerable mechanical difficulties. It is possible that in some such repeated application of iodoform (or other germicide or antitoxin) to the naso-pharynx, alone or coupled with injections of iodoform emulsion into the affected glands of the neck, may lie the means of arresting the disease in the earlier stages of chronic "strumous" glands in the neck.

Note.—Since the above was written, Dr. A. B. Kelly has sent a paper in *Virchow's Archives* (December, 1894), in which Krückmann states that tuberculosis of the tonsils without naked-eye appearances is common, and is the source of tuberculosis of the neck glands, and questions whether all hypertrophied tonsils should not be removed under suspicion of scrofula.

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Obituary.

GEORGE R. MATHER, M.D.

The annual dinner of the Faculty of Physicians and Surgeons of Glasgow which was held on Friday, the 29th November, 1895, will long be remembered by those who were present on account of the startlingly sudden death of Dr. George R. Mather, within a few minutes after he had responded on behalf of the Volunteers to the toast of "The Navy, the Army, and the Reserve Forces." Shortly after beginning his speech he requested the permission of the President to make use of his notes on the ground that he had not been feeling very well of late, and had had some hesitation as to the wisdom of his undertaking this duty. Beyond this incident, which certainly was not customary to him in public speaking, nothing unusual was observed during the course of his reply. After following his notes very closely for a few minutes, he laid them aside, and concluded by a fervid peroration delivered with great vigour in his usual impassioned style. He sat down amid great applause, and immediately afterwards his friend, Mr. Tom M'Ewen, the artist, who was seated on his right, began to sing the ballad, "Ca' the yowes to the knowes." During the singing of the second verse of this song Dr. Mather was observed to be slipping from his chair, his breathing having become somewhat suddenly stertorous. He was at once carried by willing helping hands into the vestibule of the hall, but in the course of a minute or two his breathing ceased and his heart had stopped. The tragic event, as by a magician's wand, changed the house of mirth into a hall of mourning, and the Fellows of Faculty, on leaving the sad scene, felt that the pains of death had not seized their departed brother alone, but had in some measure taken hold upon themselves.

Dr. Mather had been in the enjoyment of his usual robust health till about two months before his death, when he began to suffer from paroxysms of pain in the lower sternal and epigastric regions. During the first month of their occurrence, at least, the attacks of pain did not, to his great relief, spread into the left shoulder or arm. The seizures were usually induced by exertion, especially if undertaken soon after a meal, and they frequently terminated in a free eructation of wind. The pain was of an overpowering character, "bringing," as we have heard him say, "the sweat over his forehead." In the intervals he felt perfectly well, and was sometimes days without an attack. The possibility of the affection being angina pectoris was ever before him, although he was willing to persuade himself that the pain might after all be simply of gastric origin. On one occasion, in the evening, after an unusually severe attack which had commenced while attending a Royal Infirmary Managers' meeting, he permitted, with considerable reluctance, a medical friend to auscultate his heart; but the cardiac sounds were found to be perfectly pure. In full knowledge of the gravity of his condition, and during the last week or two evidently with a clear conception ever before him of the possibility of sudden death, he calmly determined, while giving up his night work, to persevere with his daily duties, a determination quite characteristic of the man.

At the time of his death Dr. Mather was 56 years of age. He was the son of Dr. Matthew Mather, who practised for many years in the village of Shettleston, removing in 1851 to the house at 11 Annfield Place, Dennistoun, where his son George continued always to reside. Dr. M. Mather died in 1863 of typhus fever contracted in the discharge of his professional duties, and was succeeded by his son, who had taken his degree of M.D. at the University of Glasgow in 1861.

About eight years ago Dr. George R. Mather married Miss Jessie Glen, eldest daughter of a well-known Glasgow engineer. Much sympathy has been expressed for Mrs. Mather in her bereavement. There were no children.

Dr. George Mather used often to speak of the Mearns district as his "calf country," and in this part of Scotland the Mathers had for very many years been established as substantial farmers, of good old Covenanting stock. In judging of the personality of George Mather, we cannot neglect the influence of his ancestry upon his whole life and mode of thought. From his Covenanting forefathers he had inherited both that deep religious feeling and reverence for things divine, which, though never obtrusive, were always felt to be present by those who were intimate with him, and that fervent Scottish patriotism and love of Scottish literature and song which permeated his whole being. He was one of the kindliest and most generous men we have ever known, in spite of a massive frame and a rugged face, which, not knowing him, would have prepared one to find in him a disciplinarian of the strictest kind. He was beloved by his patients, and especially by the poorer of them, for his warmheartedness and the anxiety of his care for them. Passing along George Street on the day after his death in a tramcar two elderly women of the working class were seated beside us. The one said to the other—"His feyther wis ma doctor afore him—there's mony 'll miss him."

Dr. Mather was widely known as a patron of art and a collector of pictures, especially of those of Scottish artists. His judgment and taste in all matters pertaining to painting were valued by all. But even when we regard him from this point of view we cannot get rid of the ancestral influence. His father, we have been informed, was a musician of no mean ability, and on a visit we once made with Dr. George to one of his farmer relatives, we were struck by the quaint arrangement of old china in the best room, and by the fine old Chippendale furniture which had been handed down from a past generation. The collection of pictures made by Dr. Mather is an exceptionally fine one, and he frequently lingered with pleasure over his finer examples. He bought pictures because he delighted in them and loved to look at them. The Sabbath morning before his death, along with his wife he had looked at almost every picture on his walls. In literature, his favourite authors were Scott and Burns. He was one of those instrumental in founding the Glasgow Scott Club, and he succeeded Professor Veitch as president of that body. In science his hero was John Hunter, although, with that rare justice which he always displayed, he was inclined to think that the claims of the elder brother, William, had been somewhat underrated. He used to say if there had been no William, there could have been no John. Hence when he wrote his book *Two Great Scotsmen*, he made it a joint biography of the brothers William and John Hunter. He thought it was a shame that no volume on the Hunters had ever been issued from the Glasgow press, and he determined to remove this by issuing his own work in the centenary year of John Hunter's death. Dr. Mather's book, which was well received, was reviewed in our issue for May, 1894, where some account of it will be found. The similarity of his death to that of John Hunter, the great man whom he reverenced so much and loved so deeply, is a coincidence too striking not to be mentioned in a notice like this.

Dr. Mather's whole professional life was passed in active general practice in Dennistoun. His practice had gradually grown to be one of the largest in this district of the City. His periods of relaxation and holiday were few and short, and these, as we have seen, were spent amongst his pictures and books, or in visiting the historic localities of his beloved Scotland. During the earlier part of his career, he served a full term of years as Dispensary Physician to the Glasgow Royal Infirmary, and at one time he seems even to have meditated leaving the laborious work of general practice, and establishing himself as a teacher and pure physician. But the opportunity for this never came, and he laboured on quietly and faithfully among his numerous patients to the day of his death. Among his professional brethren, not only in Dennistoun, but over the whole of Glasgow, he was held in the highest esteem, as a skilful and wise practitioner. When the Eastern Medical Society was founded two or three years ago, he was unanimously elected its first president; and only the month before his death he had been elected a Member of

Council of the Faculty of Physicians and Surgeons, an office for which he allowed himself to be nominated chiefly on the ground that, if elected, he thought he would be in a better position to further a movement which he had deeply at heart, the erection of a statue in Glasgow to the brothers Hunter. About a year ago, he had also been chosen by the Faculty to represent them at the Board of the Royal Infirmary, and in the discharge of his duties as a Manager, as in all his other work, he was most faithful and painstaking. He was in all respects a most modest and unassuming man, and the professional honours which latterly had begun to come to him were altogether unsought, and were a true indication of the high respect in which he was held by his professional brethren.

His funeral, which was a public one, took place from the Faculty Hall on Tuesday, 3rd December, 1895. Between three and four hundred gentlemen, including the Fellows of Faculty and the Officers of his regiment of Artillery Volunteers, assembled, so that both of the large halls in the Faculty buildings were filled to overflowing. In the New Hall the service was conducted by the Rev. Mr. M'Ewen of Sydney Place U.P. Church (Dr. Mather's minister), and by Dr. Burns of the Cathedral; in the Old Hall by Dr. Marshall Lang of the Barony, and Mr. Somerville of Blackfriars. The Fellows of Faculty and the Officers marched before the hearse as far as Hope Street, where they separated into two lines, allowing the cortege to pass between them. The shops in Dennistoun were closed during the funeral, and large numbers of Dennistoun people lined Duke Street while the procession passed. The President and Council of the Faculty, with a large company of mourners, accompanied the remains to their last resting place, beside his father, in Shettleston Churchyard.

J. L. S.

CURRENT TOPICS.

Benefactions to Glasgow Infirmaries.—The Trustees of the Bellahouston Fund have made the following additional bequests:—

1. To the Royal Infirmary—(1) a grant of £2,500 in supplement of an equal sum already paid by the Trustees for the better equipment of the medical school; and (2) a grant of £7,500 towards the erection of a pathological museum and

laboratory, and another operating theatre, to be called the "Bellahouston Theatre."

2. To the Western Infirmary—(1) a grant of £3,500 for the erection of another operating theatre, to be called the "Bellahouston Theatre;" and (2) a grant of £5,000 towards the erection of pathological buildings,

3. To the Victoria Infirmary—a grant of £6,000 for the erection and equipment of a dispensary for out-patients, to be called the "Bellahouston Dispensary."

GLASGOW MATERNITY HOSPITAL.—The following appointments have been made to the hospital staff:—Physician-Accoucheur, Malcolm Black, M.D.; Assistant Physician-Accoucheur, R. Jardine, M.D.; House Surgeon (In-door), A. A. Warden, M.B.; House Surgeon (Out-door), A. Kay, M.D. Professor Murdoch Cameron has retired from the acting staff, his term of office having expired.

DR. J. B. RUSSELL ON PUBLIC HEALTH IN GLASGOW.—We would call our readers' attention to the notice of Dr. Russell's report in our section for reviews, and urge them to study the report for themselves.

THE THIRD INTERNATIONAL CONGRESS OF PSYCHOLOGY will take place at Munich from the 4th to the 7th August, 1896. Members who desire to read papers must notify the subject, and send an abstract of the paper to the Secretary, 2 Max Joseph Street, Munich, on or before the 15th May, 1896. The meetings will be held in the Royal University. Sections will be formed for the discussion of Psycho-physiology, the Psychology of the normal individual, Psycho-pathology, and Comparative Psychology.

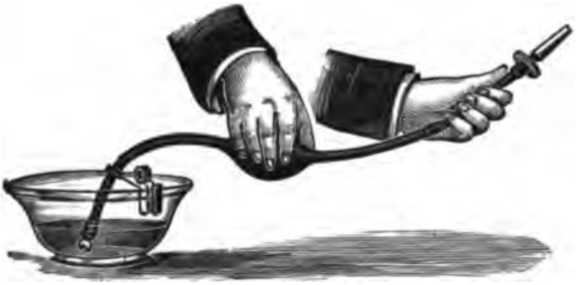
NEW PREPARATIONS, DRUGS, INSTRUMENTS, &C.—From the *Liquor Carnis Company* we have received specimens of their raw beef-juice preparations, bone-marrow preparations, and virol. We have tried the same in our hospital practice, and have been much pleased with the result. They are easily taken by patients whose appetite is fastidious, and virol has proved itself to be a very useful substitute for cod-liver oil.

Liebig's Extract of Meat Company forward a sample tin of a preparation which they designate Peptone of Beef, or Peptonum Carnis, prepared in South America according to Professor Kemmerich's method. It is neatly done up in little tins after the style of the ordinary preserved meat tins, and is useful for the rapid preparation of easily digested nutritious soup. We have tried the soup and found it very palatable.

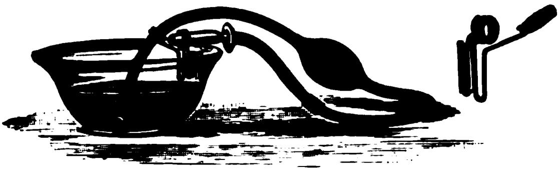
The *Nutroa Company, Limited,* submit for our inspection and trial samples of their new food stuffs. Nutroa is a purely vegetable food, and it is claimed that the addition of one part of nutroa to ten parts of any ordinary flour more than counterbalances the errors of the modern milling systems, which eliminate a considerable percentage of the nutrient portion of the wheat. Samples may be obtained from the Nutroa Company, Limited, 84 Chiswell Street, London, E.C.

BOSTON MEDICAL LIBRARY JUL 2

Messrs. Reynolds & Branson, of Leeds, have forwarded to us a basin enema clip, of which we give two illustrations. The price of the clip is sixpence, and it seems rather ingenious.



This little instrument holds the tail of any enema syringe firmly at the bottom of the basin, beneath the liquid, making the entrance of air impossible. It also has another very great



advantage in acting as a rest for the bone rectal (or vaginal) pipe after the enema has been used, and so avoiding the wetting of bed linen or making a mess on the floor or table.

We would also recommend to our readers' notice the menthol snuff prepared by *Messrs. Burroughs, Wellcome & Co.,* as a useful remedy for catarrh of the nose, cold in the head, &c.

The *Terrōl Company* send us a specimen of "Terrōl," which they propose as a substitute for cod liver oil. It is a product of petroleum, and in appearance is somewhat like thin vaseline. We have tried the preparation in Hospital in a case of phthisis, and find that it is easily taken and well borne in this disease.

Mr. John M. Richards sends specimens of Antikamnia, a coal tar analgesic. So far as we have yet tried it, we have not been much impressed with its powers in this direction.

Messrs. Thomas Christy & Co. send a box of Adeps Lanæ "N. W. K." It is a pure wool fat, of soft consistency, and we should say excellent for making ointments.

VISITING LISTS FOR 1896, &C.—*Messrs. John Wright & Co.*, of Bristol, have sent us two forms of Visiting Lists, which we have pleasure in recommending to our readers as in all respects suitable for their purpose. The one is ruled for 1896, the other so that it can be used as a perpetual list by those whose patients are not so numerous.

Messrs. Burroughs, Wellcome & Co. have sent us a copy of their A B C Medical Diary and Visiting List for 1896. It is very compact and suitable for its purpose. A copy is being sent free of charge to every medical man in Great Britain, India, and Australia. They also send us a specimen of the Diphtheria Treatment Chart, upon which may be recorded concisely and graphically the results of serum treatment. A copy of this Chart is sent out with every bottle of antitoxin, whether in the dry or wet state.

The Rebman Publishing Company announce for immediate publication a new edition, revised and brought thoroughly up to date, of *A Text Book of Surgery*, edited by Wm. W. Keen and J. Wm. White; a new work on the *Pathology and Surgical Treatment of Tumours*, by Professor N. Senn; and a new edition of *Principles of Surgery*, by the same author; *A Text Book of Obstetrics*, edited by Drs. R. C. Norris and R. L. Dickinson (art editor), with the collaboration of thirteen associates. The same firm have also just issued a new edition (the third), in one volume, of Dr. J. V. Shoemaker's *Materia Medica and Therapeutics.*

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1895-96.

MEETING II.—18TH OCTOBER 1895.

DR. J. W. ALLAN *in the Chair.*

CLINICAL DEMONSTRATION OF CASES ILLUSTRATING VARIOUS DISEASES OF THE NERVOUS SYSTEM.

BY DR. MIDDLETON.

I.—A CHILD WITH SPASTIC DIPLEGIA AND ATHETOID MOVEMENTS OF BOTH HANDS AND FEET.

J. W., æt. 4 years. Double spastic condition—legs more than arms—specially induced by walking, which she does on the balls of the toes with feet in position of equino-varus. Spasm alternates with flaccidity; when flaccid, reflexes well marked, but no ankle clonus. Sensation apparently normal. Athetoid movements of hands and feet, especially on attempted action. Occasional internal squint of right eye. Bladder and rectum correct. Mentally rather feeble; articulation bad.

History.—Result of twelfth pregnancy; six others alive and well; four miscarriages at seven months, and one at three months; labour normal; no asphyxia neonatorum. Healthy up till eight weeks; then a week of convulsions; nothing then noted till fifteen months old, when she walked with support, but on her toes, and right leg feebler than left.

Eye movements normal. The pupils react normally to light and accommodation. Fundi normal; some hypermetropia.

II.—A YOUNG WOMAN WITH POST-HEMIPLEGIC ATHETOSIS OF THE RIGHT HAND.

J. B., aged 21 years. The patient, when first seen by Dr. Ness (23rd September, 1895), complained of the condition of the right hand, which on being examined was found to be affected with "mobile spasm."

The onset of this condition is associated with an illness which she had when about 7 years of age. She says she had then "congestion of the lungs," "gastric fever," and "water in the head," the one condition succeeding the other. Altogether she was confined to her bed for about three months. Within a fortnight of her "getting up" the patient became paralysed on the right side. The girl repeats the story of the mother that she was unconscious during her illness for about three weeks; it is difficult to say what exactly happened at the time of the onset of the paralysis. However, it is stated that at the onset there was twitching of the right side of the face and of the right arm, but none in the leg. (There were no general convulsions). Immediately after this the mother found the whole right side powerless.

After getting up the patient was in the house for about three months more, during the latter part of which time she was able to walk about, but the power was much longer in returning to the arm. About the beginning of the following year (her illness had begun in August), she was able to attend the Western Infirmary twice or three times a week as an out-door patient for electrical treatment. This was continued for about six weeks.

Subsequently she was confined to the house more or less for a year, on account of an accident resulting in the fracture of a couple of ribs. But after this she was again treated by electricity for seven weeks.

During all this time the patient states that there was little or no power in the arm, and during the following two or three years, though nothing was done, a certain amount of power returned, but with it the spasmodic condition of which she now complains.

The patient had whooping-cough when six weeks old, but has never had measles, scarlet fever, rheumatic fever, St. Vitus' dance.

The patient is well developed and well nourished, but rather short for her age. Mentally she is very intelligent. Her memory is good, the above history being obtained from herself. Though in great part repeated from what her mother has told, yet she remembers a great deal of it herself.

Her physical health is good in every way. The only complaint she has is in reference to the right hand and arm.

There seems to be always a certain amount of rigidity present about the muscles of the forearm, fixing the wrist, because when the hand is allowed to lie undisturbed on the knee, though the fingers are quite flaccid, the wrist is more or less fixed. Passive movement of the fingers or wrist cannot be made without mobile spasm being set up.

Whenever she attempts to do anything with the fingers herself they become quite rigid, and the subject of typical athetoid movements.

The whole right arm is somewhat smaller in size than the left, and to a less extent the same may be said of the leg (below the knee).

The knee-jerks are present on both sides, but it does not seem as if that on the right side was markedly exaggerated.

There is no evidence of any facial condition the result of past paralysis.

The following measurements of the arms were taken at the same levels—viz.:—

	Right.	Left.
1. Over the biceps, . . .	9¾ in.	10¼ in.
2. Under the elbows, . . .	9¼ „	9¼ „
3. Round the wrist, . . .	6 „	6 „

The following measurement was taken at the thickest part of the calf:—Right, 13½ in.; Left, 14 in.

III.—A MAN WITH BILATERAL FACIAL PARALYSIS AND ABSOLUTE DEAFNESS.

A. C., æt. 27, was admitted with double facial paralysis and absolute deafness. He served as a soldier in India from 1891, and while there had various Indian diseases and syphilis. In January, 1894, he had a swelling of the scalp, which spread over the head and face; this disappeared on blistering. In February he had enteric fever, was ill three months, and was delirious part of the time; on regaining consciousness his face was paralysed. In June he had "slow fever," and at the beginning of the illness he suddenly became deaf. He was invalided and sent home in October, 1894.

Both facial and auditory nerves are affected, while the other cranial nerves have escaped.

Eye movements normal, with the exception of very slight defect of external rectus. The left pupil somewhat oval in shape, but both pupils react well to light and accommodation. Patient has full vision.

Pupils dilate well under homatropine. The optic discs are slightly pinkish, and the edges are somewhat indistinct. This condition is more marked in the left eye.

IV.—A WOMAN WITH OLD-STANDING LEFT FACIAL PARALYSIS, NOW PRESENTING CONTRACTURE AND SECONDARY OVER-ACTION.

Mrs. M'G., æt. 40, admitted 26th September, 1894, with paresis of right face, arm, and leg, and purpura hæmorrhagica.

Six and a half months pregnant; ill fed for four months; had to cease work on 13th September owing to weakness, and purpura appeared about the same time—neck, arms, trunk, and legs. On 17th September, gradual loss of consciousness with delirium (? aphasia) followed by right hemiplegia. Improved prior to admission. Slight enlargement of cardiac dulness to left, and brief V.S. at apex, with accentuated pulmonic second sound.

Urine: albumen, pus, and tube-casts.

Choked disc in both eyes.

Abortion on night of admission. Continuous improvement up till 19th November, when headache and vomiting came on, regarded as a "bilious attack," to which she was subject; but on 21st November *left* face was found completely paralysed. Total loss of response to either current in facial muscles (left). Hearing rather better on left; right meatus plugged with wax. Tenderness and apparent thickening over left mastoid.

On 27th November an epileptic fit, preceded by twitching at left angle of mouth, but convulsive movements becoming bilateral; none since. Repeated attacks of pain in left mastoid, and vomiting.

Dismissed 29th December, 1894, with left facial palsy, but right hemiplegia not apparent.

October, 1895.—Left facial paralysis, with contracture and secondary over-action of muscles about angle of mouth.

Ophthalmoscopic examination under homatropine, 15th November, 1894.—The right optic disc is pale on the temporal side, and on the nasal the edges are indistinct. There is deep physiological cupping. The arteries are pale, but more distinct than in the left eye. There are no hæmorrhages present, nor are there any signs of past hæmorrhage. The left optic disc is pale, and somewhat yellowish in colour; the edges are indistinct; the arteries are represented by the bright line, as if there was not enough colour in the blood to render them visible. The veins are about normal in size, but dark in colour.

16th October, 1895.—Patient has full vision in either eye, both for the distant and near types. The left palpebral fissure appears much smaller than the right, and the left eye sometimes tends to turn outwards. Both eyes move freely in all directions. The pupils react normally to light and accommodation.

Ophthalmoscopic Examination.—The fundi are practically normal, though the right optic disc seems somewhat pale, and the edges of the left optic disc slightly indistinct.

V.—A WOMAN SUFFERING FROM BULBAR PARALYSIS, WITH MUSCULAR ATROPHY AND INCREASE OF REFLEXES.

Mrs. J., æt. 39, was admitted on 20th August, 1895, with very manifest atrophy of the muscles of both arms and hands, so advanced as to give the characters of the "main en griffe"; also well-marked atrophy of the facial muscles, and, to a much less extent, of the muscles of the lower limbs.

History bears that the illness began eighteen months ago with hoarseness and indistinctness of speech, difficulty in swallowing, and dribbling of saliva. She had had headaches, chiefly occipital, but no vomiting. Left arm became affected about September or October, 1894, the middle and index fingers being the first involved, and apparently paralysis preceding atrophy. Right hand said to have become affected only about May, 1895.

Prior to admission had incontinence of urine. Does not admit any locomotor difficulty. No history of syphilis. Has had fourteen children and one miscarriage. Great atrophy of tongue and masseters. Has several times had dislocation of lower jaw on both sides. Cannot articulate. Swallows with difficulty. Palate moves apparently normally, and jaw-jerk well marked. Arms—great atrophy. Marked jerks. Tremors well marked in many muscles. Diaphragm paralysed. Legs—slight atrophy. Marked knee-jerks. Emotional. Bowels and bladder correct.

Eye movements normal. Pupils react normally to light and accommodation. Patient has full vision.

Fundi practically normal, though the left optic disc is somewhat pinkish, and the vessels full. Physiological cupping.

VI.—A BOY WITH BILATERAL PERIPHERAL NEURITIS, APPARENTLY DUE TO ADMINISTRATION OF LIQUOR ARSENICALIS.

H. D., æt. 11 years, admitted 4th June, 1895, with marked peripheral neuritis, affecting the four limbs, but not involving any other parts. Complete wrist-drop on the left, less complete on the right. Foot-drop well marked on both sides. Tenderness of calves and of balls of toes. Well-marked atrophy and loss of knee-jerk. Absolutely unable to stand. No impairment of sensation.

History.—Towards the end of 1894 had headache, general feeling of cold, followed by swellings of hands, face, and feet, more marked at night, associated with scanty urine and white sediment mixed with blood. This statement of the parents must be received as doubtful, as the doctor in attendance states there never was any nephritis, nor any blood in the urine. There was also sickness and vomiting, especially after food, and a pain shooting from the small of the back round both sides of the trunk.

In December he had an attack of pemphigus, treated by arsenic, and on 19th January, 1895, he entered an infirmary. He was treated there by Fowler's solution in gradually increasing doses, so that on 27th February a maximum of 22 minims three times a day was reached. The paralytic symptoms, according to patient and his mother, were fully developed before he was taken home on 3rd April. Has always been a nervous child; never had scarlet fever, measles, or diphtheria.

Eye movements normal. Pupils react normally to light and accommodation. Patient has full vision.

Ophthalmic vessels full, especially the veins, which are also considerably twisted. Patient is hypermetropic.

VII.—A PATIENT ALMOST COMPLETELY RECOVERED FROM SEVERE BILATERAL PERIPHERAL NEURITIS (SYPHILITIC ?) IN WHOM THE KNEE-JERK REMAINS ABSENT.

A. W., æt. 26 years, marine engineer, admitted 28th October, 1893, with loss of power in legs, and numbness of two month's duration. The patient had enteric fever six years ago, and in May, 1893, he had a chancre, followed by suppurating bubo, but no secondaries. Not alcoholic. The illness began in August, 1893, with numb feeling in right foot; in a fortnight, similar feeling in the left foot. After another fortnight, had difficulty in controlling movements of legs when walking. Since 14th October, weakness of grasp observed, and a weak feeling in the back. No lightning pains, no girdle sensation, no gastric, vesical, or rectal troubles.

Ataxic gait. Sways with eyes closed and feet together. Knee-jerks absent. Impaired sensation in feet and legs. No visual defect, eyes normal in every respect. Slight roseolar rash on neck and chest. Treated with perchloride of mercury and iodide of potash, then with injections of orchitic fluid. Condition steadily became worse. Dynamometer recorded at first—R., 80; L., 70; and on discharge on 10th March, 1895, it had fallen to—R., 25; L., 23. Seen 27th December, 1894, when he stated that since a month after he left he has continuously improved without medicine. Can now walk a mile without the aid of a stick. Knee-jerks still absent. 18th October, 1895—can now walk ten miles, and is again working as an engine fitter.

Dr. Sloan was very much interested in all the cases, and particularly so in Case IV, as he had under his care a similar case in whom the palpebral fissures of the two sides were unequal, more especially when the patient laughed, then it could be seen that the left palpebral fissure was less than the right.

Professor M'Call Anderson said they were all indebted to Dr. Middleton for showing the five groups of cases. He fully agreed with the diagnosis of all, and with the treatment, from which much could not be expected, although the two last cases had recovered. He quite agreed that the second last case was due to arsenic. This well-known action of arsenic was rather troublesome at times. In one case of pernicious anæmia, which was improving under treatment by arsenic, peripheral neuritis set in, and the treatment had to be abandoned. The fifth case was particularly interesting to him, having had the patient in his wards last year. With regard to the fourth case, he thought there were two lesions, on account of the interval of eight weeks between attacks. Another view might be taken of the case—viz., that it is a case of cerebral hæmorrhage, in the lower third of the pons varolii. The third case of bilateral facial paralysis and absolute deafness was strongly suggestive of hereditary syphilis. It is not uncommon to find absolute deafness with hereditary syphilis, and this patient has the characteristic dirty-grey, pasty look, sunken nose, and diseased central incisors.

Professor Macewen desired to express his thanks for the cases shown. He wished to know from Drs. Middleton and Anderson if there was any irritation of the intestinal canal due to the arsenic (there were occasional abdominal pains, but no diarrhœa). This was the case in Maclagan's cases of poisoning by arsenic, where two or three old ladies had taken sugar contaminated with arsenic. He had had some experience years ago in an important medico-legal case, where some sailors commenced an action against their captain for having supplied them with poisoned food; but it was found that the sugar used on board contained arsenic, and all the men were poisoned, and had marked gastro-intestinal irritation. The paralysis that was present remained permanently, and some of the men succumbed. The case of bilateral facial paralysis was interesting, and possibly might be capable of further elucidation, and he should be glad of the opportunity of again seeing it.

Dr. Wallace Anderson was also much interested in the cases. With regard to spastic forms of paralysis, he had, in connection with the Broomhill Home, seen more than his share of cases. A point to note is their differential diagnosis from cases of infantile paralysis. He had noted many of the points of distinction before they appeared in books, such as the conjunction of atrophy and paralysed limbs, persistent reflexes, &c. One great difficulty in dealing with nervous diseases is their nosology as regards different forms of disease and their causes. In some cases we have (1) hydrocephalus with athetosis; (2) epilepsy and athetosis; (3) fits in children, which the mothers ascribe to teething; (4) then there are cases of mental and physical idiocy, meningitis, and hæmorrhage. What is the cause of all these common cases? Then with regard to fibrillar twitching, pathognomonic of muscular atrophy, he had frequently seen it after severe muscular exertion.

Dr. Downie referred to a case which came under his observation in a boy, æt. 17 years, who suffered from total loss of hearing. The transition from dulness to total loss of hearing was sudden. He went to bed rather dull, and awoke in the morning to find hearing absolutely gone. In this case there was, as in Dr. Middleton's, a gumma of the scalp in the left parietal region, with a necrosed area of bone. The gumma broke down, and continuous suppuration caused excavation of a large portion of the temporal bone. The patient had all the marks of inherited syphilis, the central incisors being markedly notched. The mother also had a very marked history of acquired syphilis after marriage.

The boy died, and permission to examine one side only was given. At the *post-mortem* a section of the left temporal bone was made, exposing the external meatus, the tympanum, and the internal auditory meatus. The external meatus and the tympanum were healthy. The inner part of the internal meatus appeared of average calibre, but close to its outer end, approaching the vestibule, the roof suddenly sloped down to meet the floor, and the pressure of this new bony growth appeared to have destroyed the vitality of the auditory nerve, though the facial nerve seemed to be intact. Only a small portion of the horizontal one, imbedded in dense bone, represented the semi-circular canals. The cochlea seemed of normal size, but the bony spiral and laminæ were so thickened as to encroach on the cavity.

He also, in reference to Mrs. J.'s case, said that she had been under his care many months ago at the Throat Department of the Western Infirmary. She was then in the early stage of her illness, difficulty in articulation being her chief complaint; her condition being diagnosed as glosso-labio-laryngeal paralysis. She was referred in-doors for treatment, and so passed out of his hands.

OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

SESSION 1895-96.

MEETING I.—23RD OCTOBER, 1895.

DR. G. A. TURNER *in the Chair.*

AFTER the election of office-bearers for the current session, the President, Dr. G. A. Turner, made reference to the death of Dr. Thomas Keith, one of the Honorary Fellows of the Society, and proposed that the following resolution be adopted and entered in the minutes of the Society, and that an extract from the minutes be transmitted by the Secretary to Mrs. Keith:—"Resolved, that we desire to express our sincere regret at the great loss which our Society and the profession generally have sustained in the death of one of our Honorary Fellows, Dr. Thomas Keith. We record our high admiration for him as a man and as a noble example of what a physician should be. The work he did has placed his name in the forefront of the medical profession, and the fact that much of it was accomplished in great physical pain adds to our admiration for the man whose skill in alleviating the suffering of others was only equalled by the fortitude with which he bore his own. We, as a Society, desire to convey our sincerest sympathy to Mrs. Keith and family in their sad bereavement."

I.—ON THE OCCURRENCE OF TETANUS NEONATORUM IN ST. KILDA.

BY DR. G. A. TURNER.

The *President* reported that since he read his paper on the occurrence of tetanus neonatorum in the island of St. Kilda (*vide Glasgow Medical Journal* for March, 1895), antiseptic precautions have been observed in the dressing of the umbilical cord, and that the two children since born on the island have escaped an attack, and are still living.

II.—ANENCEPHALIC FŒTUS.

Dr. Malcolm Black showed an anencephalic fœtus.

III.—MYOMATA OF THE UTERUS COMPLICATED WITH PREGNANCY.

By Professor Murdoch Cameron.

Professor Murdoch Cameron read notes of a case of myomata of the uterus complicated with pregnancy of five months' duration, for which he had performed abdominal hysterectomy with a successful result.

The following summary has been supplied by Dr. J. M. Munro Kerr:—"Mrs. C., æt. 36. Has had no children and no miscarriages. Has always enjoyed the best of health. About eight years ago she noticed, by accident, 'a swelling' in the left iliac region. It was about the size of a hen's egg, but remained stationary and caused her no trouble until she became pregnant in February of the present year. When she was first seen on 16th July, the distension of the abdomen was such as to suggest a pregnancy at full time. She was operated on on 22nd July, on account of the obstruction the tumours were causing to the bowels and the circulation in lower limbs. The whole of the pelvis and left iliac and lumbar regions were occupied by the tumour masses, the uterus being displaced to right side of abdomen. The entire uterus and all the tumours were removed. The removed masses weighed 27 lb."

GLASGOW EASTERN MEDICAL SOCIETY.

Session 1895-96.

Meeting II.—13th November, 1895.

The Vice-President, Dr. Alexander Patterson, *in the Chair.*

The President, Dr. Patrick, delivered his inaugural address, entitled, "1862 to 1895, a Retrospect and a Contrast," of which the following is an abstract:—

Premising that he became a qualified practitioner in the year 1862, after having spent four years in study, and that he supplemented that period of study by a fourth term in the University which included practically the complete curriculum required for the degree of M.D., and which lasted until the year 1870, he stated that he was thus led into direct personal relation with almost every local teacher of medicine, whether intra- or extra-mural, who held an appointment between the years 1858 and 1870. The retrospective portion of his paper related his experiences and recollections of these "men of light and leading," so far as they illustrated their characters and idiosyncrasies. The part some of them took in developing and maturing questions which have now been so long settled that controversy concerning them seems to have been almost ludicrous, was briefly but graphically told. One instance relating to the proposed introduction of Loch Katrine water is worth mentioning. When that important project was still in the region of discussion, Professor Penney, the eminent teacher of chemistry in the Andersonian University, as it was then called, maintained that if the idea were carried out the inhabitants would run considerable risk of lead poisoning from the soluble salts of lead formed by the action of the water on the pipes. To prevent this, Penney suggested that the inside of the pipes should be tinned. His arguments were combated by Dr. Thomas Anderson, who at that time occupied the chair of chemistry in the University, and successfully, for experience has shown that his views were sound while those of Professor Penney were for the most part theoretical.

Regarding some of the teachers of anatomy of the period, Dr. Patrick's judgment was that they were far from competent for their duties, and of teachers of other subjects some were coarse, if not actually immoral, and others were overweighted by a multiplicity of subjects. Thus, Dr. Joseph Bell combined with his duties as an instructor of botany the pursuits of clinical teacher of medicine, consulting physician, and factory surgeon for one half of the city. He was, notwithstanding this, of an able and original turn of mind; he was the first in Glasgow to pay attention to pathology as ancillary to medicine; but he failed to perceive the difference between typhus and typhoid fever, and always maintained their identity. Walker Arnot, Ebenezer Watson, Andrew Buchanan and others were also noticed. The work of Buchanan in lithotomy and his introduction of the rectangular staff were related, and in connection with this part of his remarks the lecturer drew attention to the great change which the treatment of stone in the bladder has undergone. In those days lateral lithotomy was one of the commonest of operations, whereas now it has been so largely superseded by lithotrity and the suprapubic method that it is comparatively seldom performed. The reminiscences further mention Allan Thomson as a teacher, and paid a cordial tribute to his worth no less as a man than as an anatomist; they recalled Lawrie, Hunter, Lyon, Morton, and other surgeons of Glasgow, down to the times of Lister and Macleod; similar attention being paid to the physicians till the appointment of Dr. Gairdner as professor of physic, the post which he still happily holds.

In that portion of his address dealing with the contrasts which the present offers to bygone times, Dr. Patrick referred to the revolution that is taking place in our views of the nature of disease due to the work of Pasteur and Lister; to the reform of medical teaching; to the development of specialism and the creation of bacteriology as a new department of medical science. New drugs and new methods of treatment received attention, particularly serum therapeutics, and the wide field their introduction has caused to be opened.

The system of appointing to university chairs and other positions of honour came in for rather severe criticism. In this there is little or no improvement on the past, and the lecturer thought it high time to insist that those who are to be deemed worthy of high office should receive their credentials for work done from their professional brethren, whose suffrages should in great measure determine who should and who should not receive promotion. Political and social wire-pulling are at present only too potent in this respect.

Entrance to the profession is now much more difficult than it was in 1858, when the preliminary examination was of the simplest character. But the lecturer pointed out that with all the advantages the modern student had, the methods and means of medical education were far behind many Continental towns of much less commercial importance than Glasgow. This depends not so much on medical men themselves as on the lack of generosity displayed by our wealthy citizens, and on the ignorance and bigotry of the "shrieking sisterhood" of antivivisectionists. Time and perseverance will probably effect a remedy, but in the meantime we must frankly acknowledge that we are falling behind, as far as science is concerned, and that we must continue to do so until we have properly equipped bacteriological laboratories and more freedom for research. We might, however, better utilise the material even now at our disposal. To this end it might be a good thing for the hospitals—the larger ones at any rate—to develop the idea suggested by Hospital Sunday. In the interest of students, a joint-purse arrangement might be made of hospital fees, and themselves made members of all the hospitals, when they could, without further payment, attend any or all of the cliniques they fancied.

Dr. Patrick believes that certain maladies, such as typhus, are disappearing, and that others, as enteric, are becoming more common; and he, further, is satisfied that some diseases are not so severe as they were in the earlier years of his practice. He instanced scarlet fever and summer diarrhœa as examples of those which he finds much milder than they used to be.

After a brief reference to the entrance of women into medicine, the lecturer concluded his remarks with a few sentences on the aims and efforts of the medical profession. He pointed out that these could be best attained by united effort, and that in proportion as that effort was directed to the advancement of medicine and its practitioners, it would make for the best interests of the patients committed to their care.

The address was attentively listened to and frequently applauded. At its close, Dr. Alexander Patterson proposed a vote of thanks to Dr. Patrick, which was given unanimously.

The other business of the meeting was unimportant.

REVIEWS.

The Evolution of the Function of Public Health Administration as illustrated by the Sanitary History of Glasgow in the Nineteenth Century, and especially since 1854, with an Exposition of Results. By James B. Russell, B.A., M.D., LL.D., Senior Medical Officer of Health. Glasgow: Wm. Hodge & Co. 1895.

The present work is in its essence a retrospect of the sanitary history of Glasgow, for which Dr. Russell thinks the present time is convenient, in view of the revision of the whole internal administration of the city in 1896, and of the approaching completion of the new sanitary chambers. We think that no loyal citizen of Glasgow can read this retrospect, and reflect upon the magnitude of results therein brought to view, without experiencing a thrill of patriotic pride, first, that his native city has always been in the very forefront of the battle of sanitary reform, and, second, that she has been so fortunate during the last quarter of a century as to have at the head of her Sanitary Department a man of the administrative genius and literary culture of Dr. J. B. Russell. Dr. Russell possesses the rare quality of being able to write a sanitary report, which, while in every part preserving the strictest accuracy of detail and statistical statement, yet possesses a literary grace and a continuity of narrative, rendering it as easy to read as a romance. The present retrospect is indeed a romance of sanitation, but a romance founded on stern facts, and characterised throughout by the strictest historic accuracy. We advise every medical man in Glasgow to read it, and we can assure him that having commenced its perusal, he will not lay down the book till he has read it through, to his great personal and professional profit.

The volume consists of two parts, and an appendix of tables showing the bed accommodation for infectious diseases in Glasgow since 1865, the numbers treated in the different fever hospitals of the city, and the death-rates from the various zymotic diseases for given numbers of years.

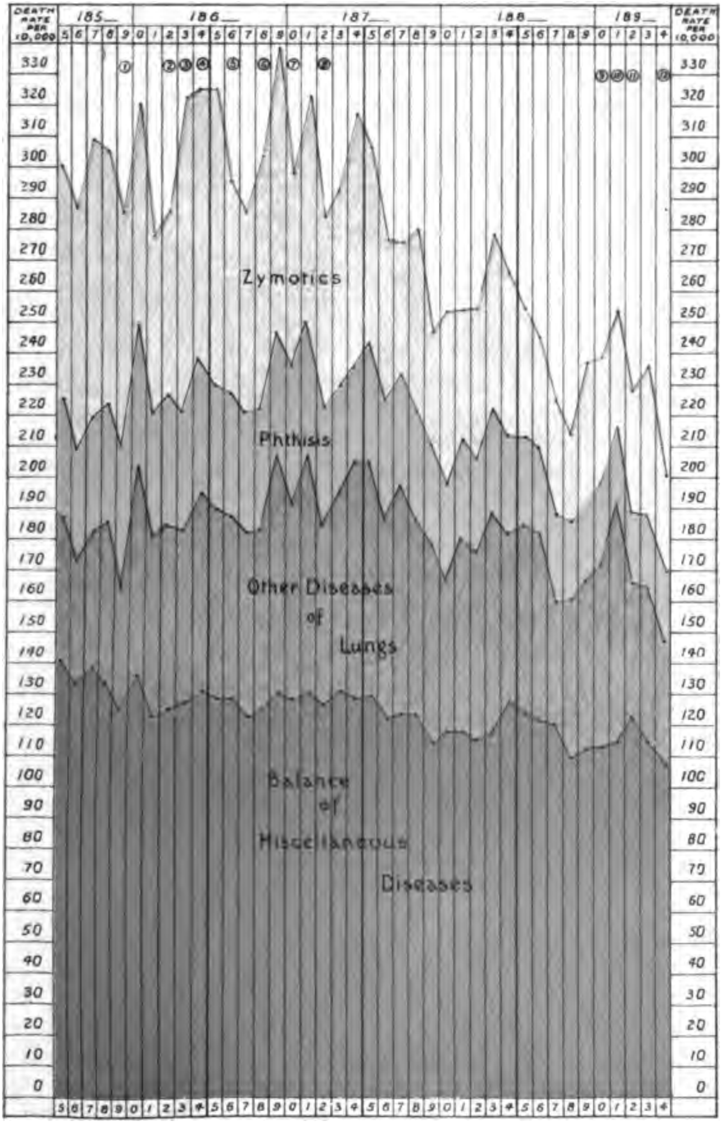
Part I is devoted to a most interesting review of the sanitary history of Glasgow in the nineteenth century. For his facts as to the state of sanitation before 1855, the year of the enforcement of the Scottish Registration Act, the author draws upon the published writings of the well known medical men in Glasgow of the earlier part of this century, and the reports of the district surgeons of the parishes of Glasgow. The extracts which Dr. Russell gives form the most interesting and suggestive reading. He then goes on to trace the development of the Glasgow Sanitary Department from its foundation in 1863, with Mr. John Ure as chairman of the Sanitary Committee, Professor Gairdner as first medical officer of health, and the five district surgeons of police as his assistants (Drs. MacGill, Dunlop, Renfrew, Young, and Johnston). The first office, a room in the central police buildings, occupied by Dr. MacGill, and shared by the first non-medical inspector, Mr. George Mackay, was "a place measuring 15 feet by 10, which, if a one-room house, would now-a-days be ticketed for four inmates!" The contrast is certainly striking. The influence of the City Improvements Act of 1866, of the work of the Cleansing Department, of the turning on of Loch Katrine water, and of the system of co-operation with the School Board, upon the reduction of the amount of infectious disease, is all made perfectly clear. The systematic disinfection of the body and bed clothing of fever patients, whether treated in hospital or at home, has increased enormously; and great strides have been made in the building of healthy houses for the working classes, and providing playgrounds for children. Such are a few of the important matters dealt with in Part I, the value of which is increased by a series of chronological charts of sanitation and health.

Part II deals with general and special results, and with the part played by hospitals in the fight with zymotic disease. A sentence or two from this part of the book are well worthy of being quoted and of being pondered by all:—"Sanitation is primarily the outcome of selfishness, a simple effort on the part of the community or the thinking governing part of it at self-protection. Ultimately it becomes altruistic, or at anyrate when the plagues are gone it has passed into a habit, although still Cholera is more effectual as a stimulant to the soporose than a discourse on altruism, or even Christianity." Or, again, in reference to the development of municipal policy as to infectious diseases:—"It appears from this narrative that the local authority took to the hospital treatment of infectious disease in pursuance of no great policy, but as a mere temporary expedient." The philanthropist and the social reformer will find many subjects for reflection on perusing Dr. Russell's report, and a study of the striking results recorded in this book may lead them on to the right lines for successfully carrying out their philanthropic schemes.

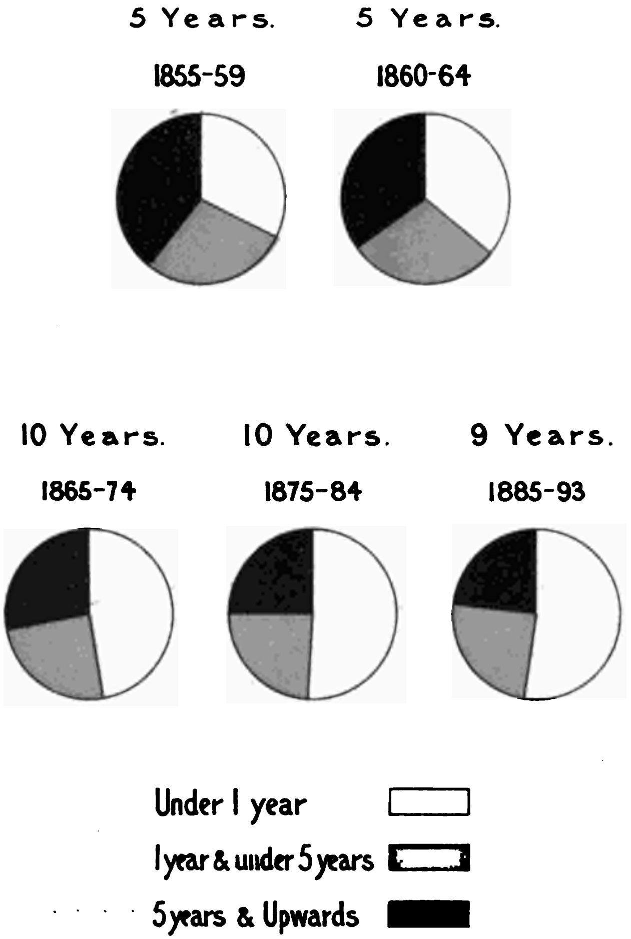
A special study is made of the influence of sanitary administration upon the individual zymotics, and the reader is greatly helped by a series of diagrams in colour, which at a glance give the results. Of the diagrams we reproduce, by permission of the Sanitary Department, No. I and No. X. The diagrams speak for themselves, and the two we have reproduced will give our readers an idea of what the others illustrating individual diseases show.

The numbers within the circles between the vertical lines of Diagram I indicate historical references, to which we append the key:—(1) Loch Katrine water turned on. (2) Police Act (1862). (3) First medical officer of health appointed. (4) First municipal fever hospital. (5) Police Act (1866). (6) City Improvements Act. (7) Cleansing taken over by the municipality, and Cleansing Department organised. (8) Scotch Education Act. (9) Police (Amendment) Act; Notification Act adopted. (10) The City of Glasgow Act. (11) Building Regulations Act. (12) First sewage purification worked opened.

I. GLASGOW.—DEATH-RATES PER TEN THOUSAND FOR 40 YEARS (1855-94), SHOWING PROPORTION DUE TO ZYMOTICS, PHTHISIS, AND ACUTE DISEASES OF THE LUNGS.



X. Glasgow.—Age—Distribution of 100 Diarrhoeal Deaths.



5 Years. 1855-59

5 Years. 1860-64

10 Years. 1865-74

10 Years. 1875-84

9 Years. 1885-93

Diagram X shows the influence of sanitary progress on diarrhœal disease in children, and the following sentence from Dr. Russell explains it:—"The actual state of the matter is that the death-rate under 5 years is now (1890-94) exactly what it was 30 years ago (1860-64), while the death-rate at 5 years and upwards is less by more than half." The whole meaning of this is that for young children the only effective sanitary inspector is the mother, and all the sanitary authorities can do is to give her every facility to be clean.

As regards the future, the following is a good indication of Dr. Russell's opinion:—"Glasgow Fair gives us an annual object-lesson. If it fell on a time of winter fog we should find our streets full of a thin mist no more irrespirable than the mist on the mountain side. It may be too much to hope for such entire freedom from smoke, but in that direction lies the future reduction of our death-rate. We are approaching a point when advance will be impossible in any other direction." . . . "All these facts go to make broader the grounds of my statement that it is mainly from diseases of the lungs that future reductions of the death-rate of Glasgow must be sought." This is the last sentence of the report, and we agree with it.

The Schott Methods of the Treatment of Chronic Diseases of the Heart. By W. BEZLY THORNE, M.D., M.R.C.P. London: J. & A. Churchill. 1895.

THE object of this little book is to introduce to English readers a method of treating chronic cardiac disease, which has for some time been pursued at Nauheim by the brothers Schott. It consists in the employment of baths and carefully regulated exercises. Dr. Thorne begins with an account of the Nauheim baths, and an analysis of their waters, pointing out the general affections in which they have been successfully employed. He then discusses their effect in cardiac cases. In favourable instances, extraordinarily rapid improvement follows. The cardiac dulness diminishes in size; the pulse becomes slower, and its tension is increased, the circulation in the peripheral vessels being thus improved. The general vascular capacity being thus greater, the heart is rapidly relieved of the excess of blood it contains, and is free to contract upon its contents. Improvement in the general health necessarily follows. Dr. Schott explains these effects "partly by the cutaneous excitation induced by the mineral and gaseous constituents of the waters, and partly by a more prolonged stimulation of the nerves of sensation, excited by imbibition into the superficial layer of the corium" —*i.e.*, there is both a direct cutaneous stimulation, and an indirect or reflex stimulation transmitted from the sensory nerves through the central ganglia to the vasomotor nerves and cardiac ganglia.

Directions are given for the manufacture of artificial baths, to correspond to those of Nauheim, in which chloride of calcium and free carbonic acid are the main ingredients. The temperature of the baths is about 90° F. Diagrams and tracings follow to support the statements of the text.

The exercises are then described. These consist in a once repeated movement of every group of voluntary muscles, which is resisted by the attendant with varying degrees of force. Care is taken that the patient breathes uniformly during the exercise, and perspiration or palpitation is the signal for their temporary discontinuance. Their effects are similar to those of the baths. They are due to "increased arterial circulation, diminished venous congestion, diminished work for the heart."

Dr. Schott states that the treatment is of value "in all cases of chronic heart disease, . . . except where the myocardium has reached an advanced state of degeneration, or the vessels are the seat of advanced arterio-sclerosis." Dr. Thorne further urges its value in "at least the early stages of aneurism of the heart and great vessels." A series of illustrative cases end the book.

That such a treatment is founded on a rational basis there can be no doubt, and the testimony to its good effect is too strong to be overlooked. But it is easy to see that, in careless hands, it might be a source of grave danger to the patient. The increase of tension in the peripheral arteries could not but be a menace—for instance, where a large aneurism of one of them existed.

The author of this review has delayed its appearance in order to report briefly a case which came under his observation. It was that of a middle-aged lady, with a commencing aneurism of the transverse part of the arch of the aorta. There was pulsation in the suprasternal notch, where the heart sounds were loudly heard, the second in particular; but there were no murmurs, nor was there any thrill at this point. The heart was somewhat dilated, the apex beat lying in the nipple line. It was not displaced downwards. No murmurs, cardiac or vascular, were present, though the cardiac sounds were slightly feeble, and the second was accentuated in the cardiac area. The pulse was small and rapid; palpitation was frequent; and shortness of breath appeared upon the least exertion. After a course of baths, extending over a month, the cardiac dulness was of normal size, the apex beat lying in the usual position. The sounds were stronger, the pulse fuller, and considerably slowed. Palpitation was only occasionally present, and shortness of breath was much less prominent. The general health was improved; and cramps in the legs, due to varicose veins, were less frequent. The aneurism did not appear to have been directly influenced by the treatment, but the slower circulation through it seemed to be in itself an advantage. After a two months' interval, during which the improvement was maintained, a second course of baths has been commenced. It was not thought desirable to employ the exercises in this case.

The Urine in Health and Disease, together with its Chemical Examination. By T. AUBREY HUSBAND, M.B., C.M. Third Edition. With Plates. Edinburgh: E. & S. Livingstone. 1895.

THE author in his preface to this, the *third* edition, says it has been carefully revised. There is still much room for effort in this direction. It is one of the class of "cram" books for which, presumably, there is a demand, but with such standard works as Roberts, Ralfe, Beale, &c., the necessity for this production does not seem apparent. To take the information on the detection of sugar as an example, we are told to "add an inch of liq. potassæ" in performing Trommer's test, whereas Finlayson and other authorities say "add cautiously just enough to dissolve ppt." The proper manner of using Fehling's solution is unexplained, no mention being made of the quantity of urine to be added, and the fallacies are hardly alluded to. In the picric acid test the directions are "To an inch of urine add half an inch of liq. potassæ and *ten or more minims of saturated solution of picric acid.*" Finlayson says equal volumes of urine and saturated solution of picric acid and a *few drops of liq. potassæ.* No mention is made of Böttger's test, the indigo-carmine test, or the polariscope.

The directions for detection of albumen are even more inaccurate. The heat and acetic acid test is badly described, no precaution being taken to prevent excess of acid after boiling. Nitric acid in the cold fares no better. The fallacies are hardly mentioned, such as time required for test, urates disappearing on heating, air, mucin, &c.

We should like to know what the author means by "cystic calculi"—presumably those composed of cystine. The English is bad—two substantives, joined by the conjunction "and," taking a singular verb—while the information is misleading, if not inaccurate. We should not care to face an examiner on the strength of having studied this book alone, while for the practitioner it is, in view of larger manuals in existence, practically useless.

The Ingleby Lectures, 1895. On Appendicitis, and on Perforation of Gastric and Duodenal Ulcer. By GILBERT BARLING, M.B., B.S. Lond. Birmingham: Cornish Brothers.

IT has long appeared to us that the vermiform appendix is one of the most formidable arguments that must be dealt with by all who rely upon a purely teleological theory of the origin of species. "For this undeveloped remnant," as Mr. Barling remarks, "man pays a heavy forfeit." The *post-mortem* records of the Birmingham General Hospital for the past twenty years include 22 cases of death directly due to appendicitis. The obvious inference is, that if it were possible to calculate the mortality from this disease, as it has occurred in all parts of the world and at all stages in the history of mankind, the aggregate number of human lives that have been sacrificed to this vestige of creation must be enormous. Even this, however, gives but an imperfect idea of the trouble caused to mankind by the appendix. For, to take the case of the Birmingham Hospital again, we ought to add to the list of fatal cases one or two which are not included among the 22, though they were almost certainly examples of the disease in question. Besides these, there were doubtless cases where an autopsy was not obtainable, and there were cases which recovered after operation. Yet the aggregate of all the different classes of cases already mentioned constitutes probably less than half the cases of appendicitis, the remainder consisting of mild cases which proceed to recovery without abscess formation or perforation. We are not aware that any serious arguments are available in favour of the utility of the vermiform appendix to humanity.

The present work consists of three lectures—the first two on appendicitis, and the third on gastric and duodenal ulcer. We have almost nothing but words of praise to offer for these lectures, which furnish a full, clear, simple, and practical account of the diseases mentioned in the title, together with the appropriate treatment. The one thing we might say by way of criticism is that a more thorough revision of the final proof-sheets would have been beneficial in correcting a good many misprints, most of which are individually of trifling importance, and in doing away with one or two instances of a careless use of words. It is right, too, that allusion should be made to a curious slip on the part of the author. He tells us (p. 14) that he has "only once seen a case in which appendicitis has followed typhoid, and in this there was an interval of five years between the two illnesses." As a matter of fact, however, he gives two cases (Nos. 3 and 27, pp. 41 and 58), in each of which typhoid fever had occurred five years previously.

Mr. Barling has operated on 29 cases of appendicitis. In the 6 cases which proved fatal, general peritonitis existed at the time of operation. In 2 other cases where there was general peritonitis, recovery took place.

The author has collected 37 cases of operation for perforation of gastric ulcer; 13 of these recovered. He doubts, however, whether one-third of all cases operated on have recovered, because it is probable that the failures have not all been put on record. On the other hand, Mr. Barling thinks that of the cases left to themselves, 95 per cent will die, so that there would appear to be an enormous advantage on the side of operative treatment. The great thing to be impressed upon the mind of the medical man is the necessity for early diagnosis and treatment of that terrible accident, gastric perforation. The operation ought to be performed as early as possible after the primary shock has passed off.

The author's remarks on perforation of the duodenum are very good, and indeed this description applies to the whole book, which we recommend with great pleasure to the medical profession.

The Surgical Diseases of Children and their Treatment by Modern Methods. By D'Arcy Power, M.A., M.B. Oxon. London: H. K. Lewis. 1895.

This work will improve in future editions. The present edition bears evidence of some haste and confusion in compilation, which mars matter otherwise good.

As the work stands, it is a fair, though by no means exhaustive, account of the commoner surgical ailments of children; and, though some of the pathology is "loose," and some of the treatment a little antiquated, there are two facts to be noted which seem to indicate that, if the author has not yet quite fully digested all the details of modern surgery, he has at least grasped the spirit of it. These facts are that, in the first place, the terms "scrofula" and "struma" do not occur in the volume; and, in the second place, that "counter-irritation" is only once mentioned as a form of treatment, and that in a half-apologetic way.

The volume contains sixty illustrations and an appendix of references.

The Student's Pocket Prescriber. By T. AUBREY HUSBAND, M.B., C.M. Third Edition. Edinburgh: E. & S. Livingstone. 1895.

THIS book—which is interleaved with blank paper, as if for note-taking—contains an introduction on the use of remedies, 396 prescriptions for various ailments, and an index of diseases. We shrink from the responsibility of recommending it to any one.

The Student's Practical Materia Medica. By GRACE HAXTON GIFFEN, L.R.C.P. & S. Ed. Edinburgh: E. & S. Livingstone. 1895.

IN this little book we have an attempt to group the facts of materia medica in such a manner as to lighten the task of the student. The book is not a complete treatise, but merely an aid or guide to the subject—meant to be read along with the ordinary text-books, and not to supersede them.

The first chapter is given up to an examination of the officinal preparations, arranged under their respective headings of Aqua, Tincture, Liquor, &c., and grouped secondarily according to their approximate dosage. The idea of grouping according to dosage is a very useful one; but, in the practical working out here, it seems that accuracy has been too ruthlessly sacrificed to uniformity—*e.g.*, an extract which, according to the *Pharmacopœia*, requires to be given in doses of from 15 to 60 grs., can hardly be expected to be very active in doses of from 2 to 6 grs., although undoubtedly it "may be given" in this minute quantity.

Chapter III deals with the officinal parts of plants and the chief characteristics of each. Even with the specimen before one's eyes, it is difficult to believe that the description given of the various vegetables would prove very satisfactory.

Radix aconiti certainly "tapers to a point" and "is brown externally;" but there are surely other points about it as characteristic as these which are deserving of mention.

One would have liked also to have had a chapter on Incompatibility of Drugs—a section which would be useful to the student, not only from the examination point of view, but afterwards in prescribing.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

By T. K. MONRO, M.A., M.D.

Alternate Hemiplegia in a Diabetic Patient with Return of the Knee-jerk on the Paralysed Side.—Marinesco exhibited, in October last, a patient aged forty-nine, who had suffered from diabetes since 1881. The glycosuria amounted at one time to 50 grammes per litre. Patient had polyuria, polydipsia, and slight polyphagia. Loss of sexual power supervened, and about the same time the legs became weak. In last July, a left hemiplegia set in rather insidiously, the face being first affected, the arm and leg afterwards. Eleven days afterwards diplopia was noticed, and three days later right ptosis. Before these palsies occurred, it had been noted that the reflexes were almost completely abolished. When the patient was exhibited, there was left hemiplegia and complete paralysis of the right third nerve. There was no sensory or vasomotor disturbance on the left (palsied) side. The knee-jerk was completely absent on the right side, and slightly diminished on the left.

The important thing to note in connection with this case is the reappearance of the left knee-jerk. Loss of the knee-jerk in diabetes is not infrequent, though the cause is not well understood. It may be a lesion of the afferent fibres concerned in the patellar reflex. In the normal condition, the tendon-reflex is kept up by stimuli which are constantly conveyed by way of the sensory fibres of the tendon to the spinal cord, whilst the pyramidal fibres exercise a modifying influence on the excitability of the anterior cornua. When the centipetal fibres from the tendon are damaged, the patellar reflex is diminished or lost; but if the restraining influence from the brain by the pyramidal fibres is withdrawn, those afferent fibres from the tendon which still retain their power of conduction may suffice in some measure for the restoration of the lost reflex.—(*Gaz. Méd. de Paris*, 9th November, 1895.)

[Some of the expressions employed in the above report of M. Marinesco's case will fail to meet with universal acceptance. Since every nerve connected with the patellar tendon may be divided without in the least degree affecting the knee-jerk, it is obviously inaccurate to speak of this reflex as depending on the functional integrity of afferent fibres coming from the tendon in question.—T. K. M.]

The Relations between Myositis Ossificans and Spinal Disease.—Eichhorst has published the case of a patient who was admitted to hospital on account of an intercurrent malady, and was found to have a spinal meningocele, perforating ulcer of the foot, and diminished sensibility on the dorsum of the foot. Some days after admission a doughy swelling developed in the calf, and ultimately a partial ossification of the gastrocnemius took place. Whether the myositis ossificans and the spinal lesion stood in a causal relation to one another was not definitely ascertained, for the patient, it is said, was dismissed "cured," except as regards a slight talipes equinus. A somewhat similar case was observed by Eichhorst several years before. The patient in this instance died of septic poisoning from a perforating ulcer, and the autopsy revealed myositis ossificans and grey degeneration of the posterior columns. The inference from the two cases is that there is some connection between the spinal disease and the muscular disease.—(Quoted in *Deut. Med.-Zeit*, 28th November, 1895.)

Hyperplastic Persistent Thymus in Exophthalmic Goitre.—Hektoen, of Chicago, has an important paper on this subject in the *International Medical Magazine* for September, 1895. He gives a detailed account of a case of this kind in which death took place by exhaustion from uncontrollable vomiting. The author concludes that "although exact figures are not at hand, yet the statement will probably not be doubted, that, as compared with the total from all sources, the number of instances of hyperplastic persistent thymus in exophthalmic goitre is proportionately larger than can be explained, without assuming some closer relation between the disease and the enlarged thymus than an accidental coincidence."

We have received for review the third part of the first volume of the *Zeitschrift für Sociale Medicin* (Leipzig, Verlag von Georg Thieme). The magazine is edited by Dr. A. Oldendorff of the Sanitary Council of Berlin. The present number contains articles on the following subjects:—(1) Sketch of a law concerning insanity; (2) Psychiatry as a subject of examination; (3) Does experience shew that the German Ambulance Association (Samariterverein) corresponds to a social need of our time? (4) A statistical review of the Medical Faculty; (5) Criticisms and Reviews; (6) Questions of the day; (7) Correspondence; (8) Legislation, &c.; (9) Short communications.

This journal is nicely printed, and promises well.

First Autopsy on a Case of Thomsen's Disease.—Déjérine and Sottas have put on record the results of the first autopsy on a case of the malady described by Thomsen in 1876. No changes were found in the cord or nerves, but there were well-marked changes in the muscles. The disease, therefore, would appear to be a primary myopathy.—(See *Internat. Med. Mag.*, September, 1895.)

Syphilitic Lesions of the Heart.—A very important paper on this subject, by Loomis of New York, deserves to be noticed at some length.

Though Ricord first called attention to syphilitic disease of the heart as early as 1851, very little advance has been made in this department of pathology. Loomis, in the course of 1,500 autopsies, has met with several cases where undoubted syphilis of the heart failed to be diagnosed during life, although associated with marked and perhaps even characteristic features. Basing upon his own cases, and on a study of cases recorded by others, he arranges the different syphilitic lesions of the heart as follows:—

I. Gummata—(1) Recent: soft, reddish, or greyish masses; (2) Old: dry, yellow, cheesy nodules.

II. Fibroid induration—(1) Localised: well-defined masses, large size; (2) Diffused: accompanied by inflammation of arteries; (3) Intermediate form: outer zone of gumma develops into fibrous tissue; cheesy centre remains as fibroid mass.

III. Amyloid degeneration.

IV. Endarteritis obliterans, often inducing infarctions.

The writer remarks that a syphilitic cause should always be suspected when symptoms of cardiac failure occur during the prime of life, without any obvious cause in the way of rheumatism, valvular disease, arterial changes, or kidney disease, especially in a patient with a history of syphilis.

Dyspnœa, distressing palpitation, præcordial uneasiness, syncopal attacks, and a feeble and rapid pulse are symptoms observed in most of the cases. The symptoms of the interstitial forms are such as would pertain to any disturbance in the function of the muscular tissue of the heart; if, therefore, a syphilitic subject has long suffered from irregularity of the heart's action, severe palpitation, and interference with the systemic circulation, the possibility that this may be owing to a syphilitic lesion should not be forgotten. A rapid improvement in the patient, and the amelioration of the cardiac symptoms which may quickly follow the commencement of antisyphilitic treatment, are important factors in diagnosis.

Patients suffering from syphilitic disease of the heart either die suddenly with few, if any, symptoms directly traceable to faulty heart's action, or succumb apparently from syphilitic marasmus, with all the symptoms of a slowly increasing cardiac failure.

The most characteristic and easily recognised of the lesions mentioned above are the gummata. These tumours are met with in the ventricular walls, and, as a rule, in the left ventricular wall. As observed by Loomis, they varied in size from a bean to a large olive. They presented themselves in two forms, depending probably on the age of the growth. They were generally, though not always, single. Though in close proximity to the endocardium and pericardium, these membranes were not necessarily involved. Microscopic and staining methods are frequently required for the differential diagnosis from sarcomata, solitary tubercules, and the beginnings of abscess.

The following is one of the author's cases:—A man, aged 35, was found dead on the floor of his bedroom by the servant who came to waken him in the morning. A friend testified that he had left him about eleven o'clock the previous evening, apparently as well as ever; although, on being questioned, this friend recalled the fact that the deceased had complained of distress over his heart two or three times while they were together. Other friends stated that he had not complained of being unwell during the month before his death. They had noticed, however, that in coming upstairs he was a little short of breath. He had been regular at business, and rarely drank to excess. The autopsy revealed a large gumma which involved more than a third of the wall of the left ventricle. This cavity was greatly dilated.

In a second instance, a young prostitute, who had contracted syphilis three years before, was admitted with symptoms of advanced cardiac disease—dyspnœa, puffiness of the face, lividity, &c. She died of asphyxia in 24 hours. A gumma was found in the anterior wall of the right ventricle, whose cavity was much dilated.

In a third case, two gummata were found in the wall of the left ventricle in a young prostitute who had a history of syphilis.

Syphilitic indurative myocarditis is not easy to distinguish, in its later stages, from fibroid disease due to other causes. The antecedent history of the individual, and the presence of other syphilitic lesions, especially gummata, may afford some assistance. In the writer's experience, this lesion also attacks, by preference, the wall of the left ventricle, though that of the right ventricle sometimes suffers. Hypertrophy and dilatation of the heart were regularly associated with this lesion, and death commonly took place slowly by exhaustion of the heart. Out of fiteen cases of fibroid myocarditis observed by the author *post-mortem*, three, at least, were of undoubted syphilitic origin.

The author has himself observed, as due to syphilis, lesions belonging to the first three groups given in the classification quoted above. The fourth group—endarteritis, which often, it is said, leads to infarctions—he has not himself observed, though some writers regard it as a syphilitic process which at times involves the vessels of the myocardium, in the absence of any other cardiac lesion.—(*American Journal of the Medical Sciences*, October, 1895.)

Pancreatitis and Fat-Necrosis.—W. S. Thayer records, in a very able article, a case of acute pancreatitis, with parapancreatic abscess and disseminated fat-necrosis. This case is of interest because it is said to be the second reported in literature in which a correct diagnosis of acute pancreatitis has been made during life, and the first in which the diagnosis has been followed by a successful operation. The patient was discharged within three months after operation. He felt quite well, and had only a small sinus remaining open. Chemical investigations in this case corroborated the view of Langerhans, that the fat-necroses consist of a combination of lime with fatty acids.

The writer favours, on the whole, Fitz's division of acute pancreatitis into three main classes:—(1) suppurative; (2) hæmorrhagic; and (3) gangrenous. But a study of the literature more recent than Fitz's *Lectures*, suggests that most cases fall under the headings of hæmorrhagic or gangrenous pancreatitis, abscess formation being probably a secondary process.

Fitz found that disseminated fat-necrosis was noted in nearly half the cases of hæmorrhagic and gangrenous pancreatitis; it was less commonly seen in the suppurative forms.

The differential diagnosis, according to Fitz, lies "between an irritant poison, perforation of the digestive or biliary tract, and acute intestinal obstruction."

Various theories have been put forward to explain the fat-necrosis which, as was first shown by Balser (1882), is so frequent an accompaniment of acute pancreatitis. Over-growth of fatty tissue, degeneration, inflammation, trophic influence of the sympathetic, micro-organisms, are among the agencies that have been invoked. Langerhans has suggested that the process may result from the action of the fat-splitting ferment of the pancreas upon the surrounding fatty tissue, the fatty acids entering afterwards into combination with lime. He once produced similar changes in the subcutaneous fat of a dog by the injection of an extract of pancreas.

Hildebrand's recent experiments (tying the pancreatic duct in cats, and introducing pieces of pancreas into the abdominal cavity in other animals) lend considerable support to Langerhans' theory. Hildebrand states that wherever the pancreatic juice came in contact with the tissues, alterations resulted which were identical with fat-necroses in man. These changes appeared to be due to the fat-splitting ferment, and not to tripsin.

Thayer has met with seven cases of acute pancreatitis. In six of these there was fat-necrosis: in the remaining one there was only a small abscess in the pancreas, and the symptoms were referable, not to the pancreatic disease, but to complete biliary obstruction caused by implication of the common duct.

That recovery from acute pancreatitis may occur where the process has been most extensive, is shown by the cases of Trafoyer and Chiari, where large portions of the necrotic pancreas were passed by the rectum. This, however, is an outcome which we can expect in but a small proportion of cases. The great majority, if not fatal during the first few days, would probably lead to a fatal general peritonitis. Even after suppuration or sloughing has taken place, operation may, in some cases, save the patient's life.—(*American Journal of the Medical Sciences*, October, 1895).

DISEASES OF THE THROAT.

By JOHN MACINTYRE, M.B.

The Representation of the Vocal Cords in the Cerebral Cortex.—An interesting paper upon this subject was read by Dr. Risien Russell at the last meeting of the Laryngological Section of the British Medical Association. He referred to the previous experiments by Krause, Semon, and Horsley, and the good work which they had done in pointing out the existence of the adductors in the cerebral cortex, excitation of which resulted in adduction of the vocal cords. It had been suggested to him that, inasmuch as Semon and Horsley had obtained abduction of the cords of the cat, that it would be possible to demonstrate a centre for this in other animals. Making use of a former observation, he found that it was possible to separate the abductor from the adductor fibres in the recurrent laryngeal nerve; and, having done so, the adductor fibres were divided transversely, leaving the others intact. Excitation of the prorean convolution in front of and below Krause's adductor centre then produced abduction of the vocal cords.

Dr. Semon, the president, congratulated Dr. Russell upon his results, and said that the credit of having demonstrated the abductor centre in the cortex undoubtedly belonged to him.—(*Journal of Laryngology*, October, 1895.)

Successful Extirpation of the whole Larynx for Cancer, with Speaking Voice afterwards. Dr. Soles Cohen.—Total extirpation of the larynx was performed, including the first ring of the trachea, the upper end of which was attached to the wound of the neck. This cut off the pharynx from all communication with the lung. The patient was shown at the last meeting of the British Laryngological Association. He swallows without difficulty, and there has been no recurrence after three and a half years. An extremely interesting feature in this case is that the man can speak without a larynx, the voice being heard distinctly in a room 20 to 30 feet off. He repeated the numerals 1 to 10, and was heard perfectly by all present.—(*Journal of Laryngology*, September, 1895.)

Surgical Treatment of Laryngeal Tuberculosis.—Those interested in the surgical treatment of this affection should read the papers by Professor Krause of Berlin and Dr. Heryng of Warsaw, published in the *Journal of Laryngology* for August, 1895. These operators offer a much more hopeful view of the possibility of ameliorating or even curing this obstinate affection in the larynx. The papers were followed by a good deal of discussion, not only at the meeting but elsewhere. Dr. Krause used the curette freely, followed by the application of lactic acid. Dr. Heryng has a set of special instruments devised by himself, and his paper contains a description of the best methods of using them. The difficulties such as pain, hæmorrhage, &c., are fully dealt with in these papers, and the expression of the discussion seems to be that the results recorded by these gentlemen entitle others to give the surgical treatment of laryngeal tuberculosis a better trial than has hitherto been afforded it. Concerning the choice of cases, Dr. Krause said he could not advise the extreme carefulness demanded from many sides; that we really could give ease by this treatment even in far advanced and sometimes desperate cases. He claimed that even in such we might relieve or remove the most tormenting difficulties of swallowing by the excision of a painful infiltration upon the epiglottis or ary-epiglottic folds. Whether the views put forward will be endorsed by the profession cannot yet be said; but the discussion indicates a tendency on the part of surgeons to do more than has hitherto been done in such cases, and the discussion which followed was exceedingly interesting.—(*Journal of Laryngology*, August, 1895.)

Diphtheria Treatment by Serum.—At a discussion on the treatment of diphtheria by this method at a recent meeting of the British Laryngological Association, Mr. Lennox Browne made the statement that he had been watching the treatment at the North-West London Hospital at the hands of Dr. Gayton. He said there was no improvement either in the mortality or other respects under antitoxin over other remedies; and, in fact, it is an open secret now that as a result of the mortality under the antitoxin serum the treatment has practically ceased to be employed in this hospital since last May.—(*Journal of Laryngology*, September, 1895.)

Alarming Hæmorrhage following the Opening of the Antrum of Highmore through the Alveolar Process. By Dr. W. Scheppegrell, New Orleans, U.S.A.—The author points out the rarity of this in his own experience, and also from a study of the literature of the question, and records a case in which a lady, æt. 33, consulted him for neuralgic pain about the right eye, and a free discharge from the right nostril. The diagnosis of empyema of the right antrum of Highmore was made and confirmed, and the operation was performed by drilling through the alveolar process at the site of the first molar tooth. A small Curtis trephine and electric-motor were used. Local anæsthesia was produced by injecting ten minims of a three per cent solution of cocaine into the gum. There was such profuse hæmorrhage that the cavity was rapidly washed out and packed with iodoform gauze. The rapid hæmorrhages, causing great prostration to the patient, occurred over a period of a month, and the author allowed the artificial opening of the alveolar process to close, and the treatment was successfully carried out afterwards by other methods through the nostril. There was no hæmophilic tendency as far as the writer could discover, and yet every attempt to remove the stopping over a period of a month after operation was followed by hæmorrhage. He thinks there must have been an angiomatous condition of the mucous membrane of the antrum at the point where the trephine entered into sinus.—(*Journal of Laryngology*, September, 1895.)

DISEASES OF THE EYE.

By FREELAND FERGUS, M.D.

Congenital Night Blindness.—An interesting account of this rare but important condition comes from the clinique of Professor Fuchs. One set of cases comprises a grandfather who had two night blind sons and three night blind grandsons. Of these five cases, four suffered from myopia, the correction of which gave good vision; one is noted as being emmetropic in one eye; and slightly hypermetropic in the other. For the most part the fundi are noted as free from retinitis pigmentosa and the vessels normal. Only in two is the retina observed to be tessellated. In all the cases the minimum light sense as examined by Förster's photometer is found to be defective. So far as known there is no history of consanguinity, and in all the condition had remained the same throughout life without any increase.

To these cases there falls to be added that of a Jewess. One of her fraternal uncles gradually became blind. In her the night blindness is reported as having been stationary. Ophthalmoscopic examination showed that the retinal arteries are diminished in size, but the fundus otherwise healthy. In the cases tested the light difference sense is noted as normal. This corresponds with Bjerrum's observation. It should also be mentioned that hemeralopia is often present in glaucoma.

Menstruation and Photophobia.—An interesting case is reported by Dr. John Dunn of Richmond. It is that of a girl, the subject of inherited syphilis, who had interstitial keratitis accompanied with extreme photophobia. The patient when brought was 14 years old, and had not menstruated. Constitutional and local treatment was employed, and the patient improved considerably in all respects except that the photophobia was of the most intense description. The author says, "she went to bed on the evening of 18th March, with her eyes showing this degree of photophobia. When she awoke on 19th March the photophobia had entirely disappeared, and with it practically all evidences of inflammation of the corneæ. Menstruation had become established during the night."

When Dr. Dunn next saw the patient, a week after the events just related, he found that she could bear any light. Both corneæ were found to be cloudy and filled with numerous lymph channels and blood-vessels. In the left eye the transparency of the corneal tissue between the lymph channels was so impaired that the channels could no longer be seen. The following are the author's observations on the phenomena of the case. We do not altogether agree in his conclusions.

"All signs of active inflammation of the right eye had disappeared; not the slightest photophobia. The left eye still showed slight evidences of pericorneal irritation, but no photophobia. The establishment of the menstrual flow had, then, caused the interstitial corneal inflammation to cease abruptly, leaving the corneæ in the impaired condition to which the keratitis had brought them, and at the same time had removed the necessity for continuance of the inflammation until the corneæ had regained their normal transparency." Further, he remarks, "the character of the inflammation which renders possible the formation of these abnormal lymph channels in the corneal tissue, and later their gradual diminution to final disappearance, is different from any which we can induce by artificial means in a healthy eye; hence arises the difficulty of obtaining by treatment results such as we desire." The author also draws the conclusion that while every effort should be made to promote the patient's general health, no attempt should be made to abruptly stop the inflammatory process.

Dermoid Cysts occurring in the orbit itself are certainly not frequently met with. One is reported by Millikin in the last number of *Knapp's Archiv.* The tumour in question affected the left side, and from its position was regarded as being probably connected with the lachrymal gland. Operation, however, revealed its true nature. It was too large to be easily dissected out, and during the operation the sac burst. There escaped almost half an ounce of fluid with *débris* somewhat like the white of an egg. The sac was found to contain a large number of hairs, and a spur of bone was found projecting from the vault into the orbit.

As part of the wall could not be dissected out it was scraped, so as to promote destructive inflammation.

Treatment of Chronic Glaucoma.—In the November (1895) number of *Archiv. d'Ophthal.*, M. Abadie has a note on the treatment of chronic glaucoma. He says that acute and subacute cases are curable by iridectomy, but that operation is of little use where the disease is chronic. In such conditions, he says, no operation is of any avail. In these cases he relies upon eserine, and the internal administration of bromide of potassium and sulphate of quinine.

For a month he administers every day a medium dose of 15 to 30 grains of bromide of potassium, and every second day 4 to 7 grains of sulphate of quinine, using all the time a lotion of eserine or of pilocarpine, or of the two combined. As soon as the tension is reduced, the remedies are administered once in eight days, and this may be indefinitely continued. While not calling in question the views expressed by so good a clinical observer and trustworthy man as M. Abadie, we regret that no statistics are given of results. To our mind many persons are disappointed with the results of iridectomy, simply because they do not make the operation in a proper way. How few take pains to make their operation at that part of the iris which responds best to eserine. On this we insisted some years ago; till that time the operation here had, like that for cataract extraction, been, as a rule, made downwards. Now, while nothing could justify a downward extraction in ordinary cases, a downward iridectomy for glaucoma was not only quite as correct as an upward one, but in certain cases even better. No rule should be formulated as to any one position being the best; success is most likely to be obtained when the operation is made at that part of the iris which responds best to eserine.

Books, Pamphlets, &c., Received.

The Transactions of the Edinburgh Obstetrical Society. Vol. XX, Session 1894-95. Edinburgh: Oliver & Boyd. 1895.

Clinical Illustrations of the Diseases of the Fallopian Tubes and of Tubal Gestation: a Series of Drawings with Descriptive Text and Histories of the Cases, by Charles S. Cullingworth, M.D. London: Rivington, Percival & Co. 1895. (12s. 6d.)

An Essay on Malaria and its Consequences, by Robert Lindsay, A.M., M.B., F.R.C.S.E. London: H. K. Lewis. 1895. (4s.)

Injuries and Diseases of the Genital and Urinary Organs, by Henry Morris, M.A., M.B. Lond., F.R.C.S. With Ninety-Seven Illustrations. London: Cassell & Co. 1895.

London Temperance Hospital: Report upon the Surgical and Ophthalmic Cases admitted during the year 1894, by Leonard Wilde, M.D.

The Evolution of the Function of Public Health Administration as Illustrated by the Sanitary History of Glasgow in the Nineteenth Century, and specially since 1854, with an Exposition of Results, by James B. Russell, B.A., M.D., LL.D. Glasgow: Wm. Hodge & Co. 1895.

Proceedings of the West London Medico-Chirurgical Society, Vol. VI, edited by J. H. Menzies and A. J. W. Clemow. London: Baillière, Tindall & Cox. 1895.

The Medical Digest, or Busy Practitioner's Vade Mecum. Appendix including years 1891-2-3-4 and to August, 1895. By Richard Neale, M.D. Lond. London: Ledger, Smith & Co. 1895. (10s. 6d.)

Galen, by James Finlayson, M.D. Glasgow: Alex. Macdougall. 1895.

The Schott Treatment of Heart Disease, by R. Greene, F.R.C.P. Ed. London: The Scientific Press. 1895. (6d.)

The Physiology of the Carbo-hydrates: an Epicriticism, by F. W. Pavy, M.D., LL.D., F.R.S. London: J. & A. Churchill. 1895. (3s. 6d.)

The Treatment of Pulmonary Consumption: a Practical Manual, by Vincent Dormer Harris, M.D., and Edwin Clifford Beale, M.B. London: H. K. Lewis. 1895. (10s. 6d.)

Epidemic Ophthalmia: its Symptoms, Diagnosis, and Management, with Papers upon Allied Subjects, by Sydney Stephenson, M.B. Edinburgh and London: Young J. Pentland. 1895.

Annual of the Universal Medical Sciences: a Yearly Report of the Progress of the General Sanitary Sciences throughout the World, edited by Chas. E. Sajous, M.D., and Seventy Associate Editors, assisted by over 200 Corresponding Editors, Collaborators, and Correspondents. Five Vols. Philadelphia, New York, Chicago, and London: The F. A. Davies Co. 1895.

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ORIGINAL ARTICLES.

ON RECENT VIEWS AS TO THE PART THE NUCLEUS PLAYS IN DEVELOPMENT.[1]

By THOMAS H. BRYCE, M.A., M.B.,
Lecturer on Anatomy.

In olden days the controversy which has always raged as to the nature and meaning of development centred round the question whether the germ contained a minute edition of the organism from which it was gradually evolved, or was in truth a germ out of which, by an orderly series of changes, the adult organism was gradually built up. The first was called the theory of "Preformation," the second that of "Epigenesis."

With the microscope and the cell theory, the germ came to be recognised as a cell, from which, by division and subdivision through a long series, the cellular tissues of the body were derived. The epigenetic theory was established for the time, when the cell was regarded as the morphological unit, beyond and behind which it was impossible to penetrate.

Soon, however, theoretical attempts were made to get behind the unit, to explain the facts of development, regeneration, &c. For example, Herbert Spencer formulated his theory of physiological as opposed to morphological units. The whole body is made up of similar units capable of multiplication, of taking many shapes and forms, and of arranging themselves in manifold ways. The germ cell contains groups of these, arranged in virtue of their polarity in such a way that the cell is capable of reproducing the whole organism. Another such attempt was made by Darwin in his conception of pargenesis, presently to be referred to; and there have been many others. But the higher magnifying power of modern lenses has revealed a wonderfully complicated architecture in our erstwhile unit; and the tendency recently has been to remove the unit many degrees further back, and give it a more definite place than a mere theoretical conception provides, until the old question returns in a new phase, as the sequel will show.

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[1] An introductory lecture delivered on the opening of the new Anatomical Department of Queen Margaret College, University of Glasgow.

But, by way of introduction, I must say that the whole fabric which I intend briefly to outline is laid practically on Darwin's "theory of descent." Very many years before his day, the "development hypothesis" was before the world. Lamarck had formulated a theory of continuous modification, due to change of external conditions, involving the physiological idea of increase by excess of functional activity and *vice versa.* This is often called the "Lamarckian principle or factor" in evolution. It involves the belief in the transmission to the offspring of characters acquired by the parents in their lifetime; and over this question we have seen Herbert Spencer and Weismann fighting tooth and nail.

Now the "theory of descent," which, though most of you know it, I may restate in a word, is that there is a constant interplay between two "laws"—the "law of variation" and the "law of heredity"—regulated by an external agency, "the struggle for existence" or "natural selection;" or, putting it as Herbert Spencer does, to represent the purely impersonal or passive nature of the agency, "the survival of the fittest."

Evolution is a fact—"the agency" is hypothetical. The Darwinian agent is the "struggle for existence;" but he admitted also "modification under changed conditions," the Lamarckian factor as a secondary agent. We have now two schools divided on this point—the Neo-Darwinians, who admit only the "struggle for existence;" and the Neo-Lamarckians, who believe only in a modification of the Lamarckian principle. Apart from the agent, both are concerned with the solution of the problem of the nature of heredity, which involves the question of the causes of variation.

But, again, as a corollary to the theory of descent, embryological science has formulated its own hypothesis, which is called the "law of biogenesis," or the "law of recapitulation" —viz., that every ontogeny (individual development) repeats the phylogeny (development in time) of the organism in question. It follows from this that heredity, in a wide sense, has a twofold aspect—an ontogenetic and a phylogenetic—a theory of heredity must explain the nature of ontogeny in order to show why the offspring always resembles the parents; but in terms of the law of biogenesis, the question of the nature of phylogeny is also involved, so that it must further explain the causes of variation—in short, it must be a theory of development in the double sense. Every theory of ontogeny which is not content with the bare epigenetic statement that the fertilised germ cell, from the inherent properties of its living substance, has the power of progressive differentiation through a long series of cell divisions, involves the assumption of ultimate particles the bearers of hereditary characters, which are massed in the germ cell. It is evident, from the nature of the case, that every theory of heredity must be a formal one, and it is necessary to remember this in view of the tendency to state purely formal assumptions as facts, and so mislead.

The ultimate units have received many names, *e. g.*, "physiological units" (Spencer), "gemmules" (Darwin), "plasomes" (Brücke), "pangenes" (de Vries), "biophors" (Weismann), and their nature, origin, and destiny have been variously conceived; but I wish only briefly to refer to two theories which take up their position at the opposite ends of the series, with regard to the origin of these units—viz., "*pangenesis*," which makes them the product of the somatic cells, and "*ancestral germ plasm*," which takes exactly the opposite view. Darwin's theory was shortly this—Every cell in the body, both in its adult state, and at every stage of its development, is giving out particles, or gemmules, capable of independent growth and multiplication. These are transmitted in the blood stream to the germ cells which have a special affinity for them. In them they are massed, and represent the characters of all the cells of the organism at every stage, and after the union of the parental packets of gemmules, they are capable, in the new organism, of developing into cells similar to those from which they sprang. Some remain latent, and pass to the next generation, accounting for "reversion" and "atavism."

According to this hypothesis, functional variations of the cells of the body would cause variation in their gemmules, which would accordingly transmit to the offspring "acquired characters," which would become permanent if, in the struggle for existence, the offspring, in virtue of their possession, had some advantage. The principle at work in the "survival of the fittest" is "utility," and the individual is represented in the germ cell by particles, or ultimate units, which vary with the individual. The selection is wholly one of individuals. It is "*external*," but as far as forms of thought go, it would be appropriate enough to say that through the "external selection" it ultimately comes to be a selection of gemmules in the germ cell.

Now, it has been almost the universal faith of mankind that a new acquisition of body or mind is transmitted to their children, but when the facts of such transmission are carefully examined, it seems that the evidence is vague, and hard to substantiate—that, indeed, whether a new acquisition is transmitted or not—the characters which are congenital, *i.e.*, present at the birth of an individual, are more readily transmitted. Accordingly, Galton and Weismann, in their respective theories, have insisted (1) on the *direct* descent of the hereditary substance from that of preceding generations; that it is not reconstructed in each ontogeny; and (2) that the basis of variation, being consequently primarily in that substance, the postulate of the transmission of acquired characters is not required, and Weismann goes the length of denying such transmission *in toto*. Only the "congenital" characters, *i.e.*, those arising from variations in the hereditary substance, are handed on.

I think Romanes has satisfactorily proved that Weismann's theory of germ plasm is only an amplification and elaboration of the ideas at the bottom of Galton's theory of "stirp," but it is infinitely more elaborate and ingenious in detail. It has been an hypothesis of evolution, which has itself undergone a long process of evolution, culminating in his "*Germ Plasm*" of 1893. It has been a long series of surrenders of one entrenchment after another, with the building up of new defences to save his citadel, and the latest advance and defence was made so lately as September, 1895, in the *Contemporary Review* for that month. His citadel is the "absolute continuity of the germ plasm," or, hereditary substance since time began. At first he postulated for it also absolute stability, but in the latest essays the germ plasm is absolutely unstable, being the seat of continuous and perpetual variation of its primary constituents.

Turning to Weismann's theory, you will find that it is based on four main inferences from observed facts, which are in large measure so speculative in character, that they ought rather to be called assumptions.

1st, and foremost, the germ plasm, or hereditary substance, possesses absolute continuity; 2nd, the germ plasm is located solely in the nucleus, which therefore alone transmits hereditary characters; 3rd, fertilisation being essentially the union of the nuclei of the sexual cells, it consists in the combination of the germ plasm of two individuals; 4th, the nature of the fusion of the nuclei being such that the constituents of the germ plasm would be doubled in each ontogeny, a "reducing division" takes place universally during the maturation of the sexual cells, by means of which the constituents of the germ plasm are halved.

The first pair of inferences lead to the postulate of a hypothetical architecture for the germ plasm, in keeping with the known structure of the nucleus, and to further hypotheses as to the nature of ontogeny, in keeping with a hypothetical phylogeny.

The second pair lead to the statement of hypothetical laws for amphigonic ontogeny, in keeping with the hypothetical structure of the germ plasm, and to hypothetical explanations of the phenomena of the transmission of hereditary characters, variation, reversion, &c.

We shall sum up the theory in respect of the first pair, and then return to the second pair.

The ultimate constituents of the perpetual germ plasm are units which he calls *biophors*. They are the lowest possible vital units, and are capable of assimilation, growth, and reproduction by fission. They correspond in some measure to "*gemmules*," but they are *not* reproduced from the body cells in each ontogeny, and are only derived from pre-existing biophors. Biophors of various kinds coalesce to form higher units of the plasm, which he calls *determinants*. They are of many kinds, and bear the same relation to biophors as simple multicellular organisms do to unicellular organisms. They are not mere collections of biophors, but are independently vital, being capable of growth and reproduction by fission. He calls them determinants, because they are supposed to regulate or determine all single cells, or groups of cells, which are independently variable. These are built up into still higher units, the *ids*, independent vital units like the lower units. The determinants must be grouped definitely, because parts which vary together must be regulated by determinants lying together in the germ plasm. The ids are the chromatine particles in the chromatine filaments called microsomata. The ids are the bearers of heredity. Every id has all the characters of the species represented in it—*i.e.*, has all the *determinants* of the species. It is a vital unit—*i.e.*, possessing characters different from the sum of the characters of its determinants, and is capable of reproduction like the other units. Theoretically the germ plasm may contain only one id, but, as a matter of fact, there are many, and they are grouped into masses—the *idants* or *chromosomes*.

The mechanism of nuclear division is a provision for the even and orderly distribution of the constituents of the germ plasm to their proper destinations.

From the ultimate structure of the "hereditary substance," follows mechanically the explanation of both phylogeny and ontogeny.

First, as to phylogeny—in the "*germ plasm*"—Weismann speculates that the lowest organisms were single biophors multiplying by fission and undergoing variation, only by the action of external conditions. The Lamarckian principle is alone at work among them. These congregate to form colonies, which also multiply by fission producing two similar colonies, &c.

Higher in his hypothetical scale, we have organisms composed of biophors which by differentiation have become dissimilar; and as these cannot give rise by fission to two similar organisms, the nucleus was evolved. The nucleus is a "storehouse of dissimilar biophors," and by the mechanism of its division distributes the biophors in orderly fashion to the parts of the cell, which are regulated by them. The biophors were at first the only constituents of the idants; but, as single celled organisms became massed together to form multicellular, and these again underwent further differentiation in the direction of specialisation of their component cells, new organised units, which were themselves composed of dissimilar biophors arranged in various ways, were evolved in the perpetual germ plasm as it was handed on, each of which controlled a cell or group of cells, which was capable of variation from the germ upwards.

Variation was due to multiplication of the determinants during development, so as to add a new ontogenetic stage, consisting of a greater number of cells determined by the original determinant of the germ plasm. When these new cells were differentiated, each required a special determinant, and hence the differentiation was due to a doubling of the primary determinant in the germ plasm. Then, again, the new determinants multiplied in the developmental stages, and new cells were added. The differentiation of these, again, was caused by a doubling in the germ plasm, and the new generations again varied independently, and so on. But qualitative changes or variations are also due to different groupings of the determinants in the different stages of development, and so on and so on through all time; and thus the ids or groups of determinants become enormously complex, and the complex whole is directly transmitted to each new generation in the ids. This highly complex germ plasm controls ontogeny by something of a mechanical—something of a truly epigenetic process. I shall render it clearer if I describe it as wholly mechanical. Thus, commencing with the maturated and fertilised ovum, let us compare the structure of the nucleus to an organised body of soldiers, the biophors. They are grouped into companies, the determinants; into regiments, the ids; into battalions, the idants; and these again into a brigade.

Now we speak of the evolutions of a brigade of soldiers, but we know that the movements are due to those of the individual battalions, regiments, companies, and ultimately to the movements of the individual soldiers acting in concert; but each group, larger or smaller, acts as an independent unit, moving as one mass. When the evolution begins in the ovum, it is instituted and controlled by companies which are told off for the purpose; they march off, break up into the individual privates, who pass through the holes in the nuclear membrane into the cytoplasm, and there guide and direct the movement. This results in the division of the whole brigade into two new brigades, each with the same number of battalions and regiments, but with only half the number of companies. These two new brigades each carry off half the cytoplasm; the ovum is divided into two. The same evolution is repeated in each new cell, under the control of a company told off in each for the purpose, and we get four cells, each having a nucleus with battalions and regiments as in the original one, but with only one-fourth of the companies; and so on through every cell division, until ultimately the regiments contain only one company, which breaks up into its constituent privates, and determines the cell or group of cells with the development of which it is concerned.

In fact, ontogeny is due to an orderly disintegration of the germ plasm. Now this simile makes ontogeny purely mechanical. It is an evolution—the whole structure of the adult organism is represented in little in the nucleus of the ovum, only the cytoplasm is progressively modified to assume the characters of the protoplasmic structure of the adult cells. As such it is understandable; but Weismann's units are not merely the sum of the characters of the lower units of which they are composed; they are vital and living, and have more than a mere abstract existence, like companies, regiments, and so on. Moreover, they multiply as development proceeds, and each determinant becomes ripe just when it is wanted, and determines the cell or group of cells by disintegrating into its constituent biophors, which in turn pass out into the cell to take up their proper stations in it. Thus Weismann would have us understand that his theory, while in part preformationary and mechanical, is really epigenetic, a true development; but I confess I cannot see how his higher units can have more than the *abstract* individuality of which I have spoken, postulated for them. The biophors are the elements of which all living matter is composed; differentiation of cell structure is due to their being mechanically combined or grouped in many different ways; and ontogeny is a mechanical distribution of the biophors in groups (the determinants), while these again are distributed in definite groups (the ids). The architecture of the germ plasm is a mechanical, not a physiological, necessity for the theory.

In what has gone before, ontogeny is represented as a peaceful and orderly progression of predetermined stages, each necessitated by the conditions of its predecessor; but in Weismann's latest pronouncements all this peace is rudely interrupted, and, instead, we have everywhere war. Roux' principle of "the struggle of parts in the organism" has been given effect to, and applied to the primary constituents of the germ plasm. They are all struggling for the nourishment to be obtained in the nucleus. We have, in fact, an "internal selection" of primary constituents, which is correlated with an "external selection" of individuals. His newest point is the suggestion that "natural selection" has itself given rise to variation—thus, in the struggle of the primary constituents for nourishment, some get more, some get less, and so we have determinants of *plus* efficiency, and others of *minus* efficiency. We have constant *plus* and *minus* variations in the germ plasm. If the *plus* determinants are sufficient in number to give to the cells of the parts which they determine, such a degree of excess vitality that they are modified, then external selections steps in, and, on the *principle of utility*, selects the individuals possessing the variation, while all the *minus* determinants are eliminated. Again, when a *minus* variation is useful, as in the case of the hind limbs of the ancestors of the whales, the *minus* determinants are selected by the selection of individuals possessing the parts determined by them, and the *plus* determinants are eliminated. If a part be useful as it stands, the *statu quo* will be maintained by the selections of individuals, in which the determinants maintain their efficiency unchanged, and all *plus* and *minus* variations of the determinants are eliminated.

"Variation of the determinants of a lasting kind arises as soon as a first impulse to it is given by the elimination of extreme variations." "This lasting disturbance of the utility of a part causes a disturbance upwards or downwards of the selection value of its variations, which again results in the determinants becoming stronger or weaker," because these stronger or weaker determinants give rise to stronger or weaker descendants, which, by the continuity of the germ plasm, pass to the next generation.

Thus the cause of variation is in the first instance entirely in the germ; "external selection" only directs whether the stronger or weaker determinants will prevail on the principle of utility.

Thus functional variations which, when expressed in the terms of the individual, correspond to use or disuse of parts, are transmitted. Again variations, seemingly conditioned by the environment, when they are expressed in the terms of the individual are transmitted, *but* not by the effects being transmitted from the somatic cells to the germ cells, as Darwin speculated. They are preceded by variations in the germ plasm, which are selected according to their utility. In short, while the two theories are in substantial agreement when we speak in terms of the individual whom we can see, when we speak in terms of the ultimate constituents which we can *not* see, "pangenesis" postulates a transmission of variations in the constituents of the somatic cells to the germ cells, while "ancestral germ plasm" postulates a transmission of variations in the constituents of the germ cells to the somatic cells.

With regard to this latest phase, if I might venture a comment, I should say that while I could understand it holding for quantitative changes—for increase and decrease—I do not see how it could account for qualitative variations, unless we suppose that the determinants are acted on by external conditions. Weismann, indeed, admits in the "germ plasm" so far—that if the determinants are acted on by climate, &c., *before they are ripe*, somatic variation may result, but no such variation is transmitted unless the determinant in the plasm of the germ cell is likewise varied, and the possibility of such cases is rare. And as to utility, how are we to account for variations, the utility of which is not apparent? In the case, to take one example cited by St. George Mivart in an article on the subject, of certain frogs, notably the obstetric frog, who takes his spouse's eggs into a special cavity for the purpose, and carries them about until ready to be hatched.

The difficulty, however, is that if variation in the cells of the body due to change of external conditions is transmitted, the variation must be represented somehow in the germ cell, and Weismann explains this by speculating that *dissimilarity of individuals* is to be referred back to the primordial organisms *in which the germ plasm was not yet built up*, and which were acted on by change of environment; but that all variation since then has been due to variations in the primary constituents, and his account of the mechanism of these variations leads us to his second pair of inferences.

Before dealing with them, I must give you a brief account of the essential points of what is now known as to the behaviour of the nuclei of the germ cells, before and during fertilisation.

The phenomena have been proved in many forms, and it can be taken for granted that the same, or a closely analogous process, takes place in the genesis of both sperm and germ cells in all metazoa; and, as we shall see, there is a homologous process in plants.

Hertwig, in 1890, described what takes place in the germ cells of *ascaris megalocephala*, a parasite inhabiting the intestine of the horse, and on account of its importance to Weismann's theory, I give briefly what takes place, according to his account.

In the sperm cells, the mother sperm cell has four chromosomes or chromatine fibres in the nucleus about to divide. These are first doubled, a directive spindle then appears, and four chromosomes travel to each pole, division of the cell body takes place, and we have two cells each with four chromosomes. Each daughter cell then divides—without a pause, and *without initial splitting of the chromosomes*—and we have four granddaughter cells, each with two chromosomes, and each a functional spermatozoon. In the germ cells a strictly analogous process occurs, a doubling of chromosomes takes place, a spindle appears, and four of these pass to each pole. Four are extruded as the first polar body, four are retained in the mother ovum. The next step is the appearance of another spindle in the ovum, but there is *no splitting of the chromosomes*, and a second polar body is extruded having two chromosomes, while the other two are retained in the ovum. The first polar body also divides in the same way, and thus we have four bodies—one, the original mother cell with two chromosomes—the other three, polar bodies each with two chromosomes. This, however, is really a cell division, the polar bodies are abortive ova, only one of the cells being functional in which the yolk food had been accumulated. We can understand this unequal division of the cell body, when we remember the profound effect on the nature of the subsequent segmentation of the egg, by the quantity and disposition of the yolk food, as I have had occasion to show you in the class of embryology.

Now, if the interpretation of the appearances is correct, the process of nuclear division is modified here, in that we have no longitudinal splitting of the chromosomes, as Weismann puts it—"In both cases the reducing division does not consist in the idants becoming split longitudinally, and in their resulting halves being distributed equally amongst the two daughter nuclei as in ordinary nuclear division, but in one half of the entire number of rods passing into one daughter nucleus, and the other half into the other." But Brauer, in redescribing what occurs in 1893, interpreted this last division differently, and brought it into line with ordinary nuclear division, and this, and other observations to be mentioned hereafter, make it probable that this reduction of chromosomes by division does not take place universally.

But to resume. The reduced nucleus of the ovum is called the "female pronucleus." Fertilisation consists in the invasion of the ovum by the spermatozoon, the nucleus of which forms the "male pronucleus." The male and female pronuclei conjugate to form the segmentation nucleus. Now each had two chromosomes, as Van Beneden showed, and the four chromosomes do not unite, but retain their identity during the first division of the fertilised ovum, and are split in such a way that an equal number of chromosomes from each parent nucleus passes into the two daughter cells, so that the two new nuclei are derived equally from the two parent nuclei; and consequently every cell in the body derived from these two cells will share equally in the descendants of their chromosomes.

Now it is generally agreed that the nucleus is the bearer of heredity, that the essential feature of fertilisation is to be regarded as the union of the nuclei described above, and that the parent chromosomes retain their identity during the first division; so that the number of chromosomes in the fertilised ovum is doubled, and this double number retained in all the cells of the individual. Thus the number of chromosomes would be doubled in every ontogeny, which is manifestly impossible; and so "reduction of chromosomes" takes place in spermatogenesis and oogenesis. Weismann holds that this takes place by "reducing divisions," as I have already shown, and this is his fourth fundamental assumption, to explain the facts of amphigonic heredity—*i.e.*, transmission of characters from two parents—in keeping with the hypothetical architecture of the germ plasm. Thus—half the idants are extruded by the reducing divisions, and consequently half the ids. Now the ids are of many kinds; each contains its determinants in different combinations, so that if we suppose different ids are extruded in each ontogeny, we have the possibility of infinite variety in the characters transmitted, owing to the difference of combination of ids retained. Moreover, the determinants are constantly undergoing modification, so that differently modified ultimate constituents may be retained or rejected by the retention or rejection of the ids. Further, the maintenance of the identity of the parent idants involves the conception of the identity of the ids; and, seeing that they can rarely be combined in exactly the same way in the reduced nuclei of the parent cells, there is again the possibility of an infinity of different combinations. Thus the germ plasm will continually vary, and the individuals springing from it can never be wholly alike except in the case of identical twins, which are supposed to spring from one ovum. Thus the dissimilarity of successive offspring from the same parents, the varying degrees in which the parental characters are represented, reversion, and indeed all the facts of heredity, are to be explained by the elimination of different ids in the "reducing divisions," leading, therefore, to an infinity of different combinations. *The whole theory of amphigonic heredity, and consequently the greater part of the theory of variation, depends on the establishment of the universality of "reducing division."*

Now it is established by recent investigations that in many —in all probability in every organism, plant, or animal—a reduction of chromosomes takes place at a period in development which may be considered homologous in all. In the plant world it occurs at the alternation of the asexual with the sexual generation—*e.g.*, in the fern, the fern plant or asexual generation has nuclei with twice the number of chromosomes than those of the sexual generation or prothallus, and the reduction takes place in the spore mother cells. In the phanerogams in which the sexual generation is reduced, and included within the body of the asexual the same reduction occurs in the mother cells, which give rise to the sexual cells. Exactly parallel reduction is found in the formation of the sexual cells of animals, and it is naturally assumed that the significance, be it physiological or phylogenetic, is the same in both.

Now, all botanists are agreed that no such thing as a reducing division takes place in plants. Professor Strasburger holds most distinctly that the reduction takes place in the mother cells, and is due to a fusion of the chromosomatic individualities or ids in pairs, and he looks on the reduction as being the expression of a return to an early phylogenetic stage before sexual differentiation occurred; it is, in fact, a return to the unicellular condition, a repetition of phylogeny in ontogeny.

Moreover, he says that longitudinal splitting of the chromosomes takes place in the two divisions following the reduction in the spore mother cell, resulting in four daughter cells with the reduced number of nuclei. He ventures also to think that the formation of the polar bodies must have a similar history and a similar explanation, and that the initial doubling is due to a double longitudinal splitting, in preparation for the next two divisions.

This, however, is not agreed to by certain zoologists, and Dr. Haecker, replying to Professor Strasburger, maintains that recent work supports the occurrence of "reducing divisions." He asserts that there is only a single longitudinal splitting, and gives a scheme showing the chromosomes in the connecting chromatic thread lying behind one another thus :—

Mother cell,	$\frac{a\ b\ c\ d\ \cdot\ \cdot\ \cdot\ \cdot\ \cdot}{a\ b\ c\ d\ \cdot\ \cdot\ \cdot\ \cdot\ \cdot}$		
Separation of chromosomes,	$\frac{ab}{ab}$	$\frac{cd}{cd}$	
First division,	*ab*	*cd*	Egg nucleus.
	↕	↕	
	ab	*cd*	First polar body.
Second division,	*a*	*c*	Egg nucleus.
	↕	↕	
	b	*d*	Second polar body.

He thinks, further, that unless the general occurrence of reducing divisions is admitted, the whole process loses all significance in connection with heredity.

Other zoologists maintain the essential similarity between the processes in plants and animals, and lately Mr. Moore and Professor Farmer have given an account of the nuclear division of the pollen cells of lillies, and of the spermatozoa of triton, with the special purpose of comparing the two.

They found a correspondence even in detail, and conclude that in both there is in the *resting condition of the mother cell* a synapsis or fusion of chromatine elements, and that the nucleus emerges from the first division with a reduced number of chromosomes. The character of this first division is of the type called by Flemming heterotype, and it seems that in the higher plants and in animals alike, this occurs at a certain stage in the formation of sexual cells.

From his own observations on spermatogenesis in mammals, elasmobranches, amphibians, and birds, from Brauer's account of the process in branchipus and ascaris, and the similarity between the corresponding process in plants, Moore concludes that *there is no evidence of a universal reducing division.*

It would thus appear that unless all the botanists who are working at this subject are wrong in the interpretation of the appearances presented by the dividing nuclei of plants, Weismann's theory cannot apply to the plant world; and, therefore, loses half its force; and, moreover, it is exceedingly doubtful whether it can apply to the facts of spermatogenesis and oogenesis; except, perhaps, in certain cases which might be interpreted as intercalated.

Thus, with the recognition of the universality of an equal division of nuclei, and the consequent rejection of a special unequal division in the nuclei of the germ cells such as does not occur in any other nuclei, we are forced back on an epigenetic theory of development. We cannot but assent when Professor Strasburger says, "The only conception of development that I am able to form is that it is a succession of stages, such that each stage determines the conditions for the succeeding stage and inevitably leads on to it." . . . "The cell nuclei, in whatever part of the body they may be, are and remain endowed with all the characteristics of the species; but their activity is stimulated in a definite direction by the prevalent conditions." Weismann's hypothesis fails to satisfy, because apart from its doubtful basis in fact, everything is predetermined in the germ in virtue of the architecture of the germ plasm, and the prevalent condition can in no way directly stimulate the activity of the nuclei in any direction, save that predetermined by the struggle of the constituents in the germ plasm.

Before leaving the subject of reduction of the chromosomes during the life cycle of all organisms in which we have sexual differentiation, I may briefly indicate the direction which the establishment of such a fact is giving to speculation as to the nature of development. We must clearly remember, however, that the significance of chromosomatic reduction may be purely physiological.

The life cycle of all sexually differentiated organisms would be an alternation between a generation with a certain number of chromosomes, and a generation with half the number. The mere number seems unimportant, as even closely allied forms differ in respect of the specific number of their chromosomes.

In the higher plants, as I have said, the sexual generation is regarded as having lost its independent existence, and become included in the body of the asexual generation; and it is tempting to apply the same idea to animal development. Dr. Beard, of Edinburgh, thinks that the law of metazoic development may be expressed by saying that it is an "antithetic alternation of generations with apospory;" but apart from this speculation, which is somewhat transcendental, and for which moreover proof is not yet forthcoming, it is possible to conceive, in the light of the facts recently elucidated, that in the double divisions leading to the formation of the sexual cells we have a *distinct generation.* The landmark between the two generations would be the "great heterotype mitosis," preceded by reduction in the "synapsis" taking place in the mother cell. Further, if we venture to account for the similarity between the processes in animals and plants on phylogenetic grounds, we arrive at a morphological generalisation, the widest yet promulgated, that the reduction of chromosomes indicates a return to an ancestral stage common to all living things; that the ontogeny of every living organism is prefaced by the establishment of a generation, which corresponds to that primitive generation of unicellular organisms from which the whole animal and plant worlds have originated.

MALIGNANT MEDIASTINAL TUMOUR, WITH SECONDARY GROWTH IN THE LIVER, HAVING UNUSUAL FEATURES.[1]

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Tumours of the mediastinum are not very uncommon events in hospital practice, and whilst many may be easily recognised as aneurysmal, there are others in which the diagnosis between aneurysm and a solid tumour is a matter of some difficulty. In the case recorded below, the probabilities, even in an early stage, at least as far as the examination of the chest was concerned, seemed on the whole to be in favour of a solid mediastinal growth. On the other hand, the presence of a pulsating tumour in the abdomen suggestive of aneurysm in that situation, necessarily gave rise to the thought that the thoracic tumour might also be of that nature. At a later date, the disappearance of the abdominal pulsation, and the recognition of a solid tumour having many of the characters of an enlarged spleen, though diminishing the force of the suggestion of aneurysm, did not appear to point to the simple explanation of the facts discovered on *post-mortem* examination. The fact that this examination was obtained enables the case to be presented in a form sufficiently complete to render its record of some interest and value.

T. H., æt. 47, engineer, was first seen by me in the Western Infirmary in June, 1894. He was then complaining of shortness of breath and of attacks of flushing of his face and neck, both symptoms being induced or aggravated by exertion. He had always been a healthy man until two months before admission, when the above symptoms commenced to be troublesome; in the course of two or three weeks they had become so severe that he was compelled to give up work. Soon after this, his voice became hoarse, and he observed pulsation in the upper part of the abdomen; more recently the condition of his voice had distinctly improved. He had not suffered any pain, but often experienced a sense of constriction about the lower part of his neck and over his shoulders, and felt as if a load was pressing upon the upper part of his chest. In the course of examination he admitted that his left arm was swollen for a time some four months before his present illness commenced; but this had soon disappeared, and had evidently caused him little or no concern. There had been no cough and no hæmoptysis; appetite good; no dysphagia; bowels costive; micturition normal. Patient recognised that his general strength had failed, and that he had lost flesh since his illness commenced. No history of venereal disease or of alcoholic excess.

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[1] The specimens from this case were shown and described at a meeting of the Pathological and Clinical Society on 14th January, 1895. See *Glasgow Medical Journal*, April, 1895.

Physical examination readily detected evidences of the intra-thoracic tumour. These may here be shortly summarised:—Œdema of chest-wall and a puffed-up condition of the face, with a general flushed appearance, and swelling of the eyelids; prominence and tortuosity of the veins over the upper right thorax, with patches of dilated venules in the chest-wall; distention of the external jugular veins without pulsation; an area of dull percussion involving the manubrium, extending 1½ inches to the right and 2 inches to the left of the middle line, and separated from the cardiac percussion (which was small and depressed) by an area of pulmonary resonance; and paralysis of the abductors of the left vocal cord. As bearing upon the differential diagnosis between an aneurysm and a solid tumour, it is to be noted that there was neither tumour nor pulsation to be felt in the jugular notch, nor any abnormal pulsation over any part of the chest-wall; no lateral displacement of the trachea, and no tracheal tugging; the arteries of the upper limbs displayed some twisting in their course, but were not specially resistant to the finger, and the radial pulses were equal and synchronous, and their sphygmograms practically identical; carotid pulses also equal on the two sides; no evidence of cardiac hypertrophy, the breadth of the cardiac dulness being only 2½ inches, presumably from overlapping of the lung; the aortic sound was noted as being rather emphatic, and the second sound as "loud and dull," over the manubrium; no murmur over either the heart or the arteries; cardiac action quite regular, the rate being 60 to 70 per minute. The condition of the lungs to physical examination was normal, the respiratory murmur equal on the two sides and free from any suspicion of tubularity or râle; comparison of the pupils was not possible, as the left eyeball had been destroyed by an accident many years ago; the right pupil was of medium size, and reacted freely to light. There was general fulness of the neck, but no evident glandular enlargement either here or elsewhere.

These facts made the diagnosis of intra-thoracic tumour irresistible, though the question of its exact nature might be open to discussion.

As already indicated, the examination of the abdomen was of special interest, and displayed facts which were regarded as possibly bearing on the nature of the intra-thoracic tumour. The note of the examination is as follows:—

"There is a readily appreciated expansile pulsation, together with fulness and a sense of resistance in the left epigastric and hypochondriac regions. The left margin of the pulsation is about an inch within the vertical line of the left nipple, whilst on the right it does not extend beyond the middle line; and the site of maximum impulse is 2½ inches to the left of the middle line, and close to the costal margin. Below, the tumour-like mass is traced to about an inch above the umbilicus, and from this level, and on deeper pressure, the abdominal aorta can be defined, its condition being apparently normal. The femoral pulses are equal and synchronous. No murmur is heard over the site of the pulsation, nor over the line of the aorta either in front or behind. Percussion over the area of pulsation is dull, and the dulness is continuous with the hepatic dulness, giving a vertical measurement in the middle line of 4 inches; the hepatic dulness in the right nipple line also measures 4 inches. The splenic dulness is not enlarged, and is separated by an area of tympanitic percussion from the dulness above defined." It may be added that whilst the pulsation in the upper left abdomen was distinct, and was expansile in character, it was scarcely of the forcible degree to be expected from an aneurysm of considerable size. The patient only remained in hospital for a few days, and he was subsequently under the care of Dr. Jas. Wylie, to whom I am indebted for assistance in completing the record of the case. In December, 1894, I saw the patient in consultation with Dr. Wylie, and the physical evidences of intra-thoracic tumour were then more decided, the distention of the superficial veins being very marked. There was also dulness and deficient R.M. over the base of each lung. It was, however, in the abdominal condition that the main interest of the case centred. The abnormal pulsation described above had now entirely disappeared. There was, however, a firm mass extending downwards and forwards from below the left ribs, so as to very much resemble an enlarged spleen. It could be freely moved by bimanual palpation, and responded conspicuously to the movements of the diaphragm. The dull percussion over it was continuous with the hepatic dulness above and to the right, and could not be isolated on the left from any area corresponding to the splenic percussion. Patient had at this time been confined to bed for some weeks, as any attempt to rise caused extreme giddiness. Aphonia had become very marked, and the area of dull percussion in the chest had considerably increased in size; the manubrium presented a considerable and irregular prominence. His strength gradually failed, and he died on 4th January, 1895. The following is a note of the *post-mortem* examination:—

"The thoracic tumour forms a considerable mass lying in the upper part of the anterior mediastinum, the upper limit corresponding with the upper margin of the manubrium. It passes downwards fully as far as the level of the third costal cartilages, and has considerable lateral extension so as to conceal the anterior aspect of the root of each lung. It has involved, and apparently extended through the manubrium, and is firmly united to the various structures within the chest with which it has come into contact. Though adherent to the root of the lung, it does not appear to have extended into the pulmonary substance. It surrounds the transverse part of the aortic arch and the origins of the great vessels which arise from the arch, and the left pneumogastric nerve, together with its recurrent laryngeal branch as this passes under the arch of the aorta, is involved in the tumour. Below, the tumour has invaded the pericardial sac, and masses of tumour tissue are found in the walls of the auricles of the heart and around the origins of the great vessels. There is one isolated tumour about the size of a marble in the wall of the left ventricle. A considerable quantity of serous fluid is present in each pleural cavity. The left lobe of the liver is almost entirely replaced by tumour tissue, which has enlarged the left lobe to such an extent that it fully equals the size of the right lobe, and forms a mass which reaches over to the left abdominal wall, and projects below the ribs in the left hypochondrium. The upper surface of this tumour is irregularly depressed and puckered. There are no tumours in the right lobe of the liver, and the hepatic tissue here appears normal. The two lobes are marked off from one another by a conspicuous constriction, the position of which correspond to the line of the suspensory ligament and the longitudinal fissure. The kidneys are normal in size, but the suprarenal capsules are greatly enlarged, and are almost entirely converted into tumour substance; the right one, which is the more enlarged of the two, is about half the size of the kidney. There are no adhesions between the capsules and the neighbouring structures. There is no enlargement of the abdominal lymphatic glands, and the other viscera appear normal." Dr. L. R. Sutherland, who has examined the tumour structure, reports it to be an alveolar sarcoma.

There are certain features of clinical interest in this case which may be briefly alluded to. It seems impossible to doubt that the mediastinal tumour gave rise by secondary extension to the tumour in the left lobe of the liver, and the natural history of this secondary growth is certainly noteworthy. At first it presented itself as a pulsating tumour, which in many respects resembled an abdominal aneurysm, and it was, I presume, at that date a highly vascular growth. Subsequently it became firmer, and formed a solid mass which, as observed during life, very closely simulated an enlarged spleen. In this respect the enlarged left lobe closely corresponded to a cancerous tumour of the left lobe recorded by Murchison.[1] Considering the significance which is attached to non-enlargement of the spleen in malignant disease of the liver, the erroneous inference drawn from such an enlargement of the left lobe is of considerable diagnostic moment. Another feature of the case not without interest is the extensive disease of the suprarenal bodies[2] existing without any bronzing of the skin or other suggestion of Addison's disease. The temporary improvement which took place in the voice, in spite of the fact that the aphonia arose from the pressure of a tumour on the recurrent nerve, appears remarkable, but this, it would seem, is not infrequent, as it was a conspicuous feature of a somewhat similar case seen by Dr. Walker Downie[3] and myself in the Western Infirmary in the autumn of 1893. Lastly, attention may be directed to the considerable vaso-motor disturbance, as indicated by the troublesome flushing of the face, which was one of the earliest symptoms.

The record of the case has further a distinct bearing upon the question of the manner in which secondary formations may arise from malignant disease originating within the cavity of the thorax. There can be no doubt that here the elements of the original tumour gained access to the systemic circulation, as is shown by the presence of secondary growths, not merely in the liver, but also in the suprarenal bodies. Such access was probably gained through the pulmonary veins which were involved in the original tumour. And yet, in spite of such entrance into the systemic channels, the development of secondary growths took place in an extremely limited area—viz., in the left lobe of the liver and the suprarenal bodies. If the latter had not been affected, it might well have been questioned whether the extension to the liver had really taken place through the systemic circulation. The inference seems to be a fair one, that a malignant tumour of the mediastinum may produce large secondary developments in the liver with little or no involvement of other organs. And if this is true of a malignant mediastinal growth, it may surely also be true of malignant disease of the lung, which through the pulmonary veins must at least have the opportunity of entering the systemic circulation. The limited distribution of the secondary growths may also reasonably suggest that the site of such growths is not determined merely by the carriage of histological tumour elements to the various organs, but also by the capacity or otherwise of these organs to resist their development. It would certainly be difficult in the above case to believe that such elements were carried, and only carried, to the left lobe of the liver and to the suprarenal bodies. And if malignant elements did reach other organs, then these organs must have had some ability to check the development of secondary growths, which was not possessed by the tissues in which such formations actually occurred.

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[1] *Diseases of the Liver*, third edition, p. 260.

[2] *Ibid.*, p. 264.

[3] *Clinical Manual of Diseases of the Throat*, p. 242.

LECTURES ON CLINICAL MEDICINE.

DELIVERED IN THE GLASGOW ROYAL INFIRMARY.

BY JOHN LINDSAY STEVEN, M.D.,
Physician and Lecturer on Clinical Medicine in the Infirmary.

II.

A CASE OF MEDIASTINAL TUMOUR INVOLVING THE ROOT OF THE LEFT LUNG.[1]

LADIES,—To-day I intend to direct your attention to a case of mediastinal tumour, the presence of which was not recognised during the life of the patient, but only when we had the opportunity of investigating the disease *post-mortem.* As regards diagnosis there were certain difficulties, a consideration of which now may be of service to us in dealing with future cases of the same kind. Our experience of this case is an apt confirmation of the truth that our failures in diagnosis frequently teach us as much as our successes, and if a study of the vital phenomena observed and recorded in the ward and of the facts revealed in the *post-mortem* theatre enables us in some measure successfully to grapple with similar cases as they may from time to time occur, the present recapitulation will not be without benefit to us all.

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[1] Delivered Saturday, 11th January, 1896.

Fortunately the failure to relate the symptoms and signs to the fundamental structural changes giving rise to them did not lead to any error in the mode of treatment adopted, which, as we shall see, would not have been in any way altered had we been successful in recognising the true anatomical basis of the illness. As we go on with our study of the case, however, you will be impressed by the striking manner in which the story of it emphasises the important truth that no detail of the clinical history or the physical examination of a patient should be overlooked, or should be regarded as too trifling to be recorded. None of the more striking and characteristic pressure symptoms of mediastinal new growth were present, but you will see that many of the symptoms which had perhaps been too lightly regarded, or attributed possibly to some other than the true cause, acquire, in the light of the *post-mortem* examination, an altogether new diagnostic significance. On one or two occasions, indeed, we were within a measurable distance of arriving at a tolerably correct view of the nature of the case, but during the latter days of the illness, the question of diagnosis was entirely subordinate to the more important matter of endeavouring to relieve the distress of the patient, towards which end all our energies were fully bent.

I shall now recall to your minds the main details of the case, some of which you may have already taken down in your note-books during our ward visits. For the clinical history and notes of the progress of the illness I am indebted to Mr. Archd. Young, B.Sc., M.B., house physician, and to Miss Edith Goodrich, clinical clerk.

Mrs. B., æt. 45, was admitted to Ward 8 on 9th November, 1895, complaining of breathlessness, and paroxysmal cough of about one month or six weeks' duration. Previous to this she had never been ill, and at the time of the onset of these symptoms she thought she had merely got a chill after a wetting. At first she experienced what she termed "a cold in the head," characterised by shivering, cough, and general malaise. For about a fortnight, in spite of this, she went about, but at the end of this time she had to take to bed, chiefly on account of the cough, which had all along been markedly paroxysmal, causing her face to become much congested during the paroxysm, and preventing sleep at night. Occasionally the stress of the cough brought on a slight degree of hæmoptysis, and not unfrequently the fit terminated in vomiting. During the fit of coughing she complained at times of pain over the left shoulder behind, and slightly in the left infra-clavicular region, towards its outer aspect. The pain was of a stabbing character. Occasionally the violent coughing gave rise to the involuntary passage of urine, a symptom which became more and more marked during the progress of the illness. Her appetite from the start of her trouble was much impaired, but the function of the bowels was always satisfactorily performed.

The family history threw no light upon the case, both of her parents having died when she was too young to remember anything of them. She was one of a family of five, of whom two were dead, one in childhood of scarlet fever, the other in giving birth to a child. The patient herself had three children and one miscarriage. Two of her children were still-born, and one died at the age of 7 of "water in the head." Before the onset of her last illness she had not considered herself liable to take cold easily, and had never suffered from bronchitis.

The patient on admission suffered from considerable dyspnœa, and, by inadvertence, having been allowed to walk up stairs, she arrived in the ward almost helpless from want of breath, with her face very livid. Next day it was noted that there was still considerable congestion of the face, as well as of the ears, fingers, and toes. No œdema could be made out in the legs, but there was just a suspicion of it, which was never again observed, on the backs of both hands. The patient was a very stout woman, the breasts being large and very pendulous. Chiefly on this account it was found impossible to localise the apex beat, or to map out the area of cardiac dulness. The cardiac sounds, however, although weak, were made out to be quite pure, the second being possibly accentuated over the pulmonic area. The pulse numbered 120 per minute, and was regular, though rather weak.

The movements of the chest were rather limited. The pulmonary percussion note was on the whole clear over the entire front, but on account of the thick layer of adipose tissue it was difficult to make precise statements as to percussion, particularly over the posterior aspect of the chest.

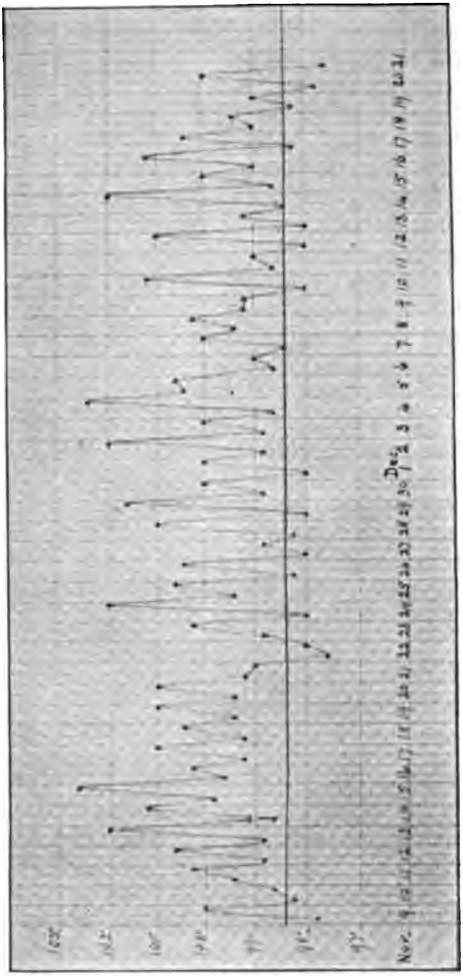
For the same reason also the respiratory murmur was everywhere found to be somewhat feeble, particularly towards the bases. On forced respiration, however, distinct prolongation of expiration, with abundant sonorous, sibilant, and moist crackling râle could be made out everywhere, but especially posteriorly and inferiorly. The vocal fremitus and resonance, on account of the stoutness, could not be made out with distinctness at any part.

There was no abdominal tenderness, and no sign of any hepatic enlargement. The urine contained a slight trace of albumen, and was rather high coloured, throwing down a tolerably abundant deposit of pink urates.

During her residence in the ward the following were the chief clinical phenomena noted:—The attacks of coughing gradually increased in severity, and they were always worst in the night time. The dyspnœa, especially during the last week or two, was always greatly aggravated after an attack of coughing. The expectoration was never abundant, but was frothy and muco-purulent in character. The cough, except doubtfully during the last day or two, had no special brassy or incomplete character such as might have suggested its origin in reflex irritation due to pressure rather than in generalised bronchial catarrh. Its paroxysmal character, however, was always marked, and this feature was not sufficiently taken into account in estimating the nature of the case. During an attack of coughing, too, I often observed a hernia-like bulging above the left clavicle, which was highly suggestive of an emphysematous protrusion of the apex of the left lung. This swelling entirely subsided when the cough ceased, and palpation in the left supraclavicular region revealed nothing. At no time was any definitely localized œdema of the face, the neck, or the arms observed.

Towards the end the patient lost considerably in flesh, and possibly on this account there was detected on one or two occasions, and specially on the 12th December, a comparative dulness at the left base posteriorly. It was also thought that the respiratory murmur was quite distinctly feebler and more distant over the dull area than elsewhere, but these signs were never of such a pronounced character as to rivet the attention upon them, although, as we shall see, they were of very great importance. Generalised sonorous and moist bronchial râles could, as a rule, be made out, distributed more or less abundantly throughout the whole chest. I shall now read to you a note which I entered in the ward journal two days before the fatal issue.

19th December, 1895.—In spite of all treatment the cough has continued very severe, particularly during the night. The temperature showed a markedly remitting character, the evening record being usually from one to two degrees higher than the morning, and, though usually between 100° F. and 101° F., occasionally reaching 102° F. or over. On the whole, the morning temperature is rather above than below the normal, and from 14th to 22nd November it was never below 99° F. The temperature curve at one time suggested the possibility of a tubercular basis to the bronchial affection, but no unmistakeable physical sign of this could be detected. Physical examination of the heart has also been excessively difficult on account of the patient's stoutness. During the last two or three days the breathing has become exceedingly laboured, necessitating her sitting up in bed, the difficulty being chiefly experienced during inspiration, the accessory muscles being vigorously employed for the indraught of air, which takes place with considerable noise and a slight throwing back of the head. Expiration is accompanied by an audible sigh.



On the evening of the 19th the note was continued as follows:—The breathing has continued laboured the whole day, in spite of frequent oxygen inhalations, and about 9 P.M.

the difficulty was so extreme that a hypodermic injection of strychnine and strophanthus was administered by Mr. Young. At 9·30 P.M. I saw the patient, who was complaining loudly of a choking sensation in the throat. On examination of the back no râles could be heard, but a very strikingly prolonged and laboured condition of the expiratory murmur was an exceedingly marked feature. Having regard to all the circumstances, and especially to the fact that she was actually in danger of suffocation, it was decided to perform venesection, and about 10½ oz. of blood were removed from the left arm. At first the blood did not flow so freely as afterwards, when it came in a continuous stream, varying in force with the respirations.

An attempt at percussion of the heart, before the phlebotomy, indicated an extension of the cardiac dulness to the right and also upwards as high as the second interspace. The sounds of the heart could not be heard on account of the laboured breathing. Orthopnœa remained extreme until the time of her death on 21st December, 1895.

In the note which I have just read, I have given you some account of the treatment adopted for the relief of the patient during the last days of her illness. A word or two will suffice to give you an idea of the therapeutic measures adopted from the time of her admission.

On the 11th November she was put upon the following mixture, with a view both to strengthen the heart and relieve the cough:—

℞.—Tinct. digitalis,		1 dr.
Tinct. nucis vomicæ,		2 drs.
Spt. chloroformi,		4 drs.
Infusi cascarillæ,	ad.	6 ozs.—M.

SIG.—Half an ounce three times a day.

A liniment of equal parts of olive oil and oil of eucalyptus was also ordered to be rubbed over the chest night and morning. On the 16th November this mixture was stopped, and, as the most urgent symptom was the coughing at night, 20 drops of nepenthe were ordered at bedtime. At the same date she was put upon 2 oz. of brandy in the twenty-four hours, which was increased to 3 oz. on the 8th December. Soup, beef-tea, milk, and Carnrick's liquor carnis were frequently administered; and during the last fortnight of life 5 minims of tincture of strophanthus were given every two hours during the night. On the 16th December oxygen inhalations were commenced, and were continued to the end.

The relief afforded by these, though exceedingly transient, was so marked that the patient would have constantly kept the inhaler at her mouth when the dyspnœa was severe. The venesection also seemed to give relief for some hours.

All along I felt great difficulty in formulating a precise diagnosis, but on the whole I was inclined to think that we had to deal with a severe bronchitis, complicated by the presence of a weak and probably fatty heart, with, during the latter stages, considerable engorgement of the chambers of its right side. The detection of the dulness at the left base behind raised the question as to whether there might not be in addition a broncho-pneumonic condition, possibly of a tubercular type, a supposition favoured by the markedly hectic character of the temperature curve.

Before going on to consider the phenomena observed in the clinical course of the case, which, as we can now understand, indicated the presence of a solid growth within the chest, I will read to you the notes of the *post-mortem* examination, which was performed on the 23rd December, 1895, by Mr. David M'Crorie, Assistant Pathologist to the Infirmary:—

The pupils were slightly dilated and equal; and rigor mortis was markedly present. Subcutaneous fat was very abundant, there being a thickness of at least an inch and a quarter on the front of the abdomen. The omentum and the peritoneum generally were also loaded with fat.

On opening the chest, a white lobulated mass was found occupying the anterior mediastinum, lying behind the upper half of the sternum, and extending downwards towards the root of the left lung. Anteriorly the portion in contact with the sternum was about the size of a hen's egg, and the whole growth occupying the mediastinum (including the bifurcation of the trachea and aortic arch) was about the size of the closed fist. The tumour had extended into the left lung, chiefly along the wall of the main bronchus, but also surrounding the stem of the pulmonary artery. The left lung was firmly adherent posteriorly, and on separation of these adhesions a small secondary nodule was found in the substance of the thickened pleura. Anteriorly the left pleural cavity contained, in a series of loculated spaces formed by old adhesions, about 12 oz. of clear serum. The tumour had not involved the substance of the pericardium, but pressed against it at its upper and left aspect. There was no pericarditis; the internal surface of the pericardium was smooth, and in the cavity were about 3 oz. of clear serum. The lower lobe of the left lung was solid, the consolidated area presenting the peculiar greenish, watery, and sloughy character indicative of a commencing gangrene. The tumour tissue completely surrounded and compressed the left bronchus, but had not encroached upon the pulmonary tissue to any great extent. The base of the right lung was in a state of intense hypostatic engorgement.

The surface of the right ventricle was loaded with yellow fat, and presented the characteristic features of fatty infiltration of the heart. The aortic and pulmonary curtains were competent, and the valvular structures generally presented healthy appearances. The liver, the kidneys, and the spleen presented nothing abnormal.

The naked-eye appearances of the growth were those of lympho-sarcoma, and this opinion of its nature was afterwards confirmed by Dr. Charles Workman, who undertook a microscopic examination of the tumour. He reports that the histological structure was characteristically that of a lympho-sarcoma. In my experience this type of tumour is by far the most common form of solid growth met with in the mediastinum, but I cannot now enter into details as to the pathology of mediastinal tumour. Those of you who care to know my views on this, and to study the varieties and relationships of mediastinal neoplasms, may refer to my book on the subject, which you can consult in the library of Queen Margaret College.[1] In it you will find recorded a number of cases, which it will be useful for you to compare with that we have been considering this morning; and if you will go into the museum of the Infirmary you will find in Series X a number of characteristic specimens which I have dissected and described.

To return for a little to the clinical aspects of the present case, while it must be freely admitted that a number of the phenomena observed in the ward assume a totally different significance in the light of the *post-mortem*, it may also be granted that in reference to the diagnosis of a mediastinal solid growth the case was one of no little difficulty, and that chiefly because of the absence of most of the characteristic pressure signs and secondary manifestations. In my study of new growths of the mediastinum, I have come to the conclusion that the most useful diagnostic points are the following:—(1) the development of fulness and nodular or glandular projections beneath the clavicles and in the neck; (2) the development of secondary nodules; (3) spasmodic asthma, and paralysis of the vocal cords; and (4) local œdema and local venous varicosity. In our case all of these phenomena were absent except the spasmodic dyspnœa following the attacks of coughing. It is to be observed also that the cough, though coming in paroxysms chiefly at night, did not otherwise, except doubtfully during the last two days of life, differ from an ordinary bronchial cough of considerable severity. We can see now, however, that had we directed our attention more closely to the association of the paroxysmal cough with the physical signs detected at the base of the left lung, we might have been led to a correct view of the essential nature of the case. There never was any hoarseness or loss of voice. We can now understand, also, that the comparative dulness and deficient breathing made out at the left base were caused partly by the consolidation of the lower lobe of the left lung and the moderate pleural effusion towards the front, and partly by the narrowing of the left bronchus. It further becomes obvious that the dulness I made out over the upper part of the sternum was not due to a distended right auricle, but to the solid mass in the anterior mediastinum. The hectic type of the temperature curve, which also entered as a confusing element in our investigation of the clinical phenomena, can now be explained as the result of gangrenous and pleuritic processes going on at the left base.

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[1] *The Pathology of Mediastinal Tumours, with special reference to Diagnosis.* London, 1892.

I have thus endeavoured to point out to you the leading details of this difficult and puzzling case, and I trust that the somewhat minute study we have made of it may impress upon you this lesson, that in dealing with an obscure case it is absolutely necessary to weigh most carefully all the possibilities that the clinical phenomena or the physical signs, taken individually or in association with one another, may indicate.

ON A SIMPLE METHOD OF MAKING DIAGRAMS FOR LECTURE OR DEMONSTRATION PURPOSES.

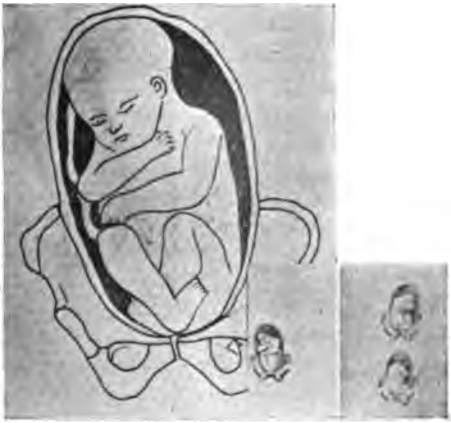
BY A. A. WARDEN, M.A., M.B.,

Indoor House-Surgeon, Glasgow Maternity Hospital; Late Demonstrator of Anatomy, University of Glasgow.

THE testimony of teachers is almost unanimous that lectures, unaccompanied by demonstration or experiment, are apt to be more or less unprofitable, and that he who attempts to instruct by voice alone rather than educate by inciting the intelligence of his audience to follow the steps of an experiment, or to appreciate a graphic representation of his subject, is apt to mystify or to fatigue. It might be expected, therefore, in these days of what Dr. Oliver Wendell Holmes called the "prahctical mahn," that simple methods of illustrating lectures either upon blackboard or upon chart would be well known. On the contrary, however, only those who possess, it may be little, but at any rate some artistic skill, or those who can afford to buy the expensive wall-charts issued by various firms can hope, in this way, to retain the attention of their students. The method about to be described is in common use, I believe, among engineers, architects, &c., but has not, so far as I know, been turned to profit by teachers of medical or scientific subjects. I have called it "simple" because it is cheap, speedy, accurate, and in no way dependent on any artistic skill possessed by the manipulator. It is cheap because, with the exception of the "mounted cloth" upon which the diagram is drawn, the materials that may be used for almost an unlimited number of charts cost but a few shillings. It is speedy, each diagram being completed, even after little experience and few attempts, in less than an hour. It is accurate in that it is a reproduction, mathematically correct, and in the size desired, of the original copy which the teacher wishes to have before the eyes of his class. The only requisite upon the part of the operator is a steady eye and hand, and though I have used the method in illustration of lectures given to the nurses of the Glasgow Maternity Hospital, I see no reason why it should not prove of value in the hands of teachers of such kindred subjects as anatomy, surgery, physiology, &c.

Briefly enumerated, the armamentarium is made up as follows:—The pantograph, a vulcanite pen, some Chinese or Indian ink, drawing-pins, paint brush, &c., and the web-cloth.

The *pantographe perfectionné*, manufactured by J. Conte, 23 Boulevard Saint-Martin, Paris, may be had, with full directions for use, from R. Miller, artists' furnisher, &c., 186 Trongate, Glasgow. It is, in a word, an instrument for copying in an enlarged or in a reduced form any design. The four limbs of the instrument are each perforated by holes numbered according to the times the original is to be enlarged, and in the desired numbers screws are fixed. The instrument itself is fixed by a pivot through one extremity into the drawing-board or table. Thus, an original sketch measuring 3 inches by 2 inches may be reproduced in any multiple up to ten, which would give a diagram measuring 2½ feet by 20 inches, quite large enough for most class-rooms. The cost of the instrument varies from two to five shillings, and its mechanism is of the simplest. The illustration it is desired to copy in diagrammatic outline must be fastened by drawing-pins to the drawing-board or table, an ivory point passed through a hole in one limb of the pantograph being directly over its centre; while the piece of web-cloth is similarly fastened down, a pencil passed through a hole in another limb of the instrument being directly over its centre. This pencil is then held in the operator's right hand, the eye accurately following (and upon this point depends the degree of fidelity of the reproduction) the movements of the ivory point over the outline of the original. If the desired illustration be in a bulky text-book, it may be necessary to take a tracing of its outline in order that the ivory point and the pencil may work upon one level. We have then our diagram roughly outlined in pencil.


From a Photograph, showing the Copy and the Diagram made by the Pantograph from it.

The vulcanite pen (6d.) should have a breadth of fully 4 millimetres (about $\frac{3}{16}$ of an inch), and dipped in the Indian ink (or, if desired, in soluble paints of any colour), is drawn firmly over the roughly pencilled outline.

The diagram is now complete, unless shading is desired, when paint or ink, or charcoal pencilling, subsequently sprayed with fixation varnish, may be used. Tape and clips complete the chart.

CURRENT TOPICS.

A Competitive Examination for seventeen Commissions in the Army Medical Staff will be held on the 7th February and following days. Particulars thereof will be found among advertisements.

Shipowners' Liability for Medical Attendance.—An important case to shipowners has been decided in Ayr Sheriff Court. The question raised was as to the liability of a shipowner for surgical attendance rendered to a seaman on board ship in a home port. The action was at the instance of Dr. Charles M. Stewart, Govan Road, Glasgow, who sued the Garnock Steam Shipping Company, Limited, for £1, 1s., his professional fee for services rendered to M. Costello, fireman on board the steamer *Burnock*, who sustained injuries through falling down an open hatch while the vessel was lying at the general terminus, Glasgow. The defenders denied liability on the ground that the ship, being in a home port, the master was not entitled to pledge the shipowners' credit for such surgical attendance. Sheriff Orr Paterson, before whom the case was tried, found that the Merchant Shipping Act of 1854, section 228, sub-section 3 (re-enacted in the Act of 1894), and which provides that " the expense of all medicines and surgical or medical advice and attendance given to any master, seaman, or apprentice whilst on board his ship shall be defrayed by the owner of such ship " applies to the present case, and that the defenders are therefore liable to the pursuer. He accordingly gave decree for the doctor's fee of £1, 1s. and £3, 10s. of expenses.—(*Liverpool Journal of Commerce*, 20th Jan., 1896.)

The Jenner Memorial Fund.—The celebrated collection of "Jenner Relics" got together by Mr. Frederick Mockler, of Wotton-under-Edge, and shown by him at the Bristol Exhibition of 1893, has been accepted by the Dean and Faculty of Medicine, University College, Bristol, to be located there, provided that the necessary amount to purchase it from the owner can be raised by public or other subscription.

In this collection of Jenner Relics are comprised:—Portraits; objects of interest personal to him; drawings in water colour, and engravings; printed books and pamphlets; manuscripts; correspondence; and diplomas, certificates, and freedoms of cities. The collection is authentic, the objects having been, for the most part, handed down as heirlooms, or obtained from members of the Jenner family; and possess not merely scientific, but great general and historical interest.

The centenary of Dr. Jenner's decisive experiment, which, proving successful, gave the incalculable benefits of vaccination to the world, will be 14th May, 1896. In Russia preparations are being made on an extensive scale to commemorate this event, and it is to be hoped that the collection may be placed in the college in anticipation of that period, so as to worthily celebrate the event here.

Intending subscribers will greatly oblige by sending in their names, at earliest convenience, to the Hon. Treasurer, W. H. Greville Edwards, Esq., Old Bank, Bristol. A list of subscribers will be published from time to time.

INTERNATIONAL PERIODICAL CONGRESS OF GYNÆCOLOGY AND OBSTETRICS.—The second session will be held at Geneva, Switzerland, in the first week of September, 1896. The following is the official programme:—

Gynæcology.—(1) "Treatment of Pelvic Suppurations," introduced by Dr. Bouilly, Paris; Dr. Kelly, Baltimore; and Dr. Zweifel, Leipsic. (2) "Surgical Treatment of Uterine Retro-deviations," introduced by Dr. Kustner, Breslau; Dr. Pozzi, Paris; and Dr. Polk, New York. (3) "What Method of closing the Abdomen presents the best guarantee against Abscesses, Eventrations, and Hernias?" introduced by Dr. Granville-Bantock, London, and Dr. La Torre, Rome.

Obstetrics.—(1) "Relative Frequency and Most Common Forms of Pelvic Contractions in different Races, Groups of Countries, or Continents," introduced by Dr. Fancourt Barnes, London; Dr. Dohrn, Königsberg; Dr. Fochier, Lyons; Dr. Kufferath, Brussels; Dr. Jentzer, Geneva; Dr. Lusk, New York; Dr. Rein, St. Petersburg; Dr. Pawlick, Prague; Dr. Pestalozza, Pavia; and Dr. Treub, Leyden. (2) "Treatment of Eclampsia," introduced by Dr. Charles, Brussels; Dr. Charpentier, Paris; Dr. Halbertsma, Utrecht; Dr. Loehlein, Giessen; Dr. Mangiagalli, Milan Pavia; Dr. Parvin, Philadelphia; and Dr. Smyly, Dublin.

The Secretary General for Great Britain (through whom all correspondence and business will be directed) is Dr. Leith Napier, 67 Grosvenor Street, London, W. In making application for membership, please give name and address in full, as well as all titles.

We have been requested to call the attention of our readers to the new volume of *Clinical Sketches* which commences with the new year. This magazine is edited by Mr. Noble Smith, and its price, which has hitherto been a shilling, will now be reduced to sixpence. The aim of the proprietors has been to produce "sketches, not only artistic but literary, illustrative of current medical and surgical literature, printed in large type and on good paper, so that busy man could read the journal with facility, even when riding in his carriage." The December number contained, in addition to much literary matter on various topics of medical interest, some very good illustrations, including reproductions of the well known portrait of John Hunter, painted by Reynolds and engraved by Sharpe, and a profile view of Hunter's head from an old engraving.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

Session 1895-96.

Meeting III.—1st November, 1895.

The President, Dr. W. L. Reid, *in the Chair.*

I.—A SUCCESSFUL CASE OF EXCISION OF THE PYLORUS.

By Dr. Jas. A. Adams.

The following case is worthy of record as being of rare occurrence, and, so far as I can gather, it is the first that has been successful in Scotland.

On 1st July, 1895, I was consulted by Mrs. C. regarding an abdominal growth she had noticed about six months previously. She stated her age was 55 years, although her emaciated appearance made her look at least fifteen years older. She did not complain of vomiting, but stated she felt constant nausea with disinclination for food, and had lost flesh very rapidly. She was exceedingly feeble.

The growth, which was the size of a small orange, could be moved freely, and the stomach was much dilated.

On 19th July, assisted by Drs. M'Gregor, M'Pherson, and Findlay, I made a straight central incision three inches long above the umbilicus, and drew out the growth, which proved to be a carcinomatous tumour of the pylorus. The swelling was not adherent to the other viscera, and I was unable to detect any enlarged glands under the liver or in the vicinity of the lesser omentum or pancreas.

The tumour was dragged well out of the wound, and the abdominal cavity protected with natural sponges wrung out of warm boracic solution. An assistant grasped the stomach and duodenal sides of the growth between his forefinger and thumb, compressing the viscera so as to prevent the escape of the contents. The knife was then passed lightly round the pylorus at a distance of one inch from the edge of the growth, *dividing only peritoneal and muscular coats.* These were reflected about an eighth of an inch in the direction away from the growth, and the mucous membrane divided with scissors as far from the tumour as possible. Immediately prior to division of the mucous membrane the portion to be excised was clamped. Several vessels in the mesentery were ligatured with catgut, and the wound well swabbed with warm boracic solution. The stomach cavity was then flushed out with the same solution, and a few fragments of food removed. The upper portion of the stomach wound was stitched with a continuous catgut Lembert suture until the lumen corresponded to that of the duodenal opening. The assistant grasping the two wounds with forefinger and thumb brought them into apposition, and they were stitched up with a similar suture, which only included the serous and muscular coats. This operation was greatly facilitated by the previous free removal of the mucous membrane from the edge of the wound. The peritoneum was carefully stitched with catgut on the lesser curvature of the stomach, and a flap of omentum lightly stitched over the gastro-duodenal wound. The abdominal cavity was not flushed, and the parietal wound was closed with buried and superficial stitches. The operation took exactly sixty minutes, and chloroform was used.

For thirty-six hours nothing was administered by the stomach, but the patient was permitted to wash her mouth with warm water and a few drops of brandy. Rectal feeding was commenced at once, two oz. of milk and half an ounce of brandy being given every four hours. From the 19th till the 21st, patient vomited twice, but this ceased after administration of bismuth powder, 10 gr.

On the 22nd, during a period of twelve hours, she had 1 oz.

of Valentine's meat juice. On 23rd, 4½ oz. Valentine's meat juice. On 24th, 7 oz. of raw beef-tea with Valentine's juice. On 25th, 33½ oz. milk, barley water, beef tea (raw), and Coleman's wine. From 25th until 30th July, she had an average of 50 oz. of fluid, after which date she was put on ordinary diet.

The bowels moved twice on 25th July, once on 26th, and twice daily until 13th August, when the record was discontinued.

On 30th July, patient became slightly delirious, but the condition immediately ceased on reducing the daily allowance of alcohol.

The parietal wound was dressed fourteen days after operation. The temperature remained normal, except on 3rd August, when it rose to 101·2° F., but fell again in four hours to normal.

The patient was allowed up on 21st August, and went to the country on 11th September.

Unfortunately, prior to the operation no record was made of her weight, but she has markedly put on flesh since, and has not had a vestige of nausea, flatulence, or eructation of any kind. Her strength has also greatly increased.

The pyloric opening had been reduced to the size of a No. 10 catheter, and the tumour proved to be a cylinder-celled epithelioma, as will be seen from the following description by John Lindsay Steven, M.D.:—

"The specimens received are apparently sections of the gastro-intestinal wall, not, however, involving its entire thickness, the muscular and peritoneal coats being obviously absent. At one point numerous villi are seen, and immediately below the mucous surface large masses of agminated mucous glands (Brunner's?) At the extremity of the section opposite that in which the villi are seen, a large mass of obviously pathological tissue is made out. On close examination of this, it is found to consist of a groundwork of round corpuscles having all the characters of leucocytes. Embedded in these are numerous epithelial structures, assuming the shape of irregularly shaped tubes and spaces; the type of epithelium is in some places distinctly columnar, and occasionally large cyst-like spaces filled with homogeneous material are seen.

"All the appearances suggest a cylinder-celled epithelioma, with intense inflammatory reaction accompanying it."

Remarks.—While gastro-enterostomy is an easier operation and less fatal than pylorectomy, and while the immediate effect upon the patient is very striking, it is only palliative, and the longest period that life can be prolonged is about a year. After complete excision of the pylorus the results are different. Thus, Wölfler had a case that lived in comfort for 5¼ years, and although the glands in the portal fissure were found carcinomatous, the stomach remained free from disease. Rydggier has also reported a case which lived 2½ years, and was entirely free from disease for two years. These cases, however, are excelled by Kocher, who operated 5½ years ago on a lady who is at the present moment in the enjoyment of perfect health. I am indebted to this latter surgeon for an interesting *résumé* of the cases recorded on the continent, and for many valuable hints in his recent work on operative surgery.

It will be noted that I did not use clamps, unless on the excised portions, that continuous sutures were employed, and that catgut was used instead of silk. The mucous membrane was also left unstitched. While clamps are strongly recommended by Kocher and other surgeons, and while I might not hesitate to use them where there was difficulty in approximating the incised portion of intestine, I think I have seen paralysis, with consequent delay in healing, induced by their use.

That the continuous suture is alone permissible, I have no doubt whatever, as it is rapidly applied, and is much more likely to induce perfect approximation than the interrupted. I used the ordinary catgut—which I always have prepared in my wards—to resist the action of the tissue for three weeks, and am of opinion that leakage from stitch abscess is less likely to follow with catgut than with silk.

[*10th January, 1896.*—At this date, the enlarged, diseased cervical glands have almost entirely subsided. A number suppurated, burst, and discharged strumous material. Her health is much better since suppuration occurred, and she is steadily gaining weight.]

Dr. Knox congratulated Dr. Adams both on his remarkable success and in being the first to succeed, in Scotland, after many trials. He had listened with interest to the details of the operation, and had no doubt that in similar operations the method adopted by Dr. Adams would remain the classical one.

Dr. Renton rose with pleasure to second Dr. Knox's remarks. This was an admirable case, and the operation was highly satisfactory, quite apart from the survival of the patient. The result was absolutely satisfactory, the pyloric tumour being removed, and the patient making a good recovery. The patient, on interrogation, stated she felt better and happier than she had felt for many months previously. Apparently she was practically well in the meantime. He should be glad to see the patient say in a year's time, when it would be of some interest to see how time shall have tested the result. It was to be hoped that the enlarged glands in the neck were not malignant.[1] He agreed with Dr. Adams that pressure by an absolutely reliable assistant was preferable to the use of clamps, as the pressure of the latter might cause some trouble. Clamps never caused him any trouble, but he never had a case of excision of the pylorus. It was always advisable to get rid of mechanical aids in joining the bowel, and in such circumstances the continuous suture was the best if only knots were placed here and there for greater fixity and security. He was surprised the mucous membrane was not united.

Mr. H. E. Clark had great pleasure, as Dr. Adams' senior colleague, in adding his congratulations. Of recent years it has been customary to recommend the operation of gastro-enterostomy in such cases. It might not be safe to found too much on the results of one operation, yet the successful issue in this case might lead to rehabilitating the operation of pylorectomy. The operation could not be called an essentially curative one, but it certainly staved off the conditions that are the usual accompaniments of pyloric disease. The cases most favourable for operation were, as in this case, those with absence of adhesions to surrounding structures and of glandular implication, and the success of similar operations in the future must largely depend on early diagnosis by the physicians.

Mr. Maylard was pleased to hear of the case. Some time ago he operated on a case, and was partially successful, as the patient lived four days after the operation. Then as regards time, this case was commendable. With Senn's plates or Murphy's button the time could be reduced, but as a stitching operation sixty minutes was certainly remarkable. In his own case the time was between three and four hours, but implicated glands had to be removed. The condition of the patient before operation largely dominated the issue of the case. If cases could be treated before the patient had one leg in the grave, no doubt there would be greater success.

Dr. Newman was sorry the billet was too long to allow adequate discussion of this most interesting case. He quite concurred with Messrs. Clark and Maylard as to the desirability of early diagnosis of pyloric disease. Physicians and surgeons depended on signs of obstruction for their diagnosis of pyloric disease, but there must be earlier stages. Simply pain in the stomach would not justify opening the abdomen. Then, again, you may have a tumour of the pylorus without much obstruction; moreover, a patient can live with complete obstruction; and again, a pyloric tumour may become diminished in bulk by proper treatment, such as feeding by stomach and rectum, and washing out stomach. This points to the fact that, in operations on the pylorus, washing out of the stomach should be practised, as well as careful rectal feeding. In 15 cases of gastrotomy for stricture of the œsophagus careful feeding gave good results. Kocher fed to strengthen the patients. 13 of the 15 lived some time; 2 died from collapse. Continuous suture is rapid, and of the first moment. Had not done the operation himself, but knew how difficult it was to get continuous suture tight—*e.g.*, in dealing with the kidney or the duodenum. The success of continuous suture in this case should encourage us all in its use.

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[1] *Cf.* note by Dr. Adams on 10th January, 1896.

Dr. Adams replied to the various questions, and thanked the members for their welcome appreciation. He was proud of the case because it was done in Glasgow, and best of all because it was done in the old Royal Infirmary.

II.—A PATIENT ON WHOM AN OPERATION FOR THE RADICAL CURE OF A DIRECT INGUINAL HERNIA WAS PERFORMED TWO YEARS AGO.

By Dr. Jas. A. Adams.

T. A., æt. 29, newspaper carrier, was admitted to the Glasgow Royal Infirmary on 13th September, 1893, suffering from a large direct inguinal hernia of sixteen years' duration. At that time (sixteen years ago) he was operated on by Dr. Morton for strangulated inguinal hernia. On his readmission in 1893, there was a large hernial tumour in the right groin, highly tympanitic on percussion and gurgling on palpation, but not reducible. An operation for radical cure was performed on 10th October, 1893. An elliptical portion of skin was removed. The bowel was adherent, and consisted of many feet of the small intestine, and was with difficulty returned. A portion of the sac was cut away, and the remaining portion with the subcutaneous tissues were both stitched with the interrupted suture. The wound extended the entire length of Poupart's ligament.

He was kept two months in bed, to allow the parts to unite firmly, and he was dismissed well on 13th December, 1893.

[*27th January, 1896.*—At this date the wound has remained firm, and the hernia has not returned.]

Mr. H. E. Clark had listened carefully to the description of the hernia, and questioned if this was not really a ventral hernia, and due to rupture of the abdominal walls.

III.—CASE OF IMPERFORATE RECTUM—LEFT INGUINAL SIGMOID ANUS, WITH SUBSEQUENT OPENING OF THE RECTAL CANAL —RECOVERY.

By Mr. A. E. Maylard.

Abstract of Ward Report taken by Drs. Macharg and Maclennan.—J. B., aged 11 days, was admitted into the Victoria Infirmary, under the care of Mr. Maylard, on 6th May, 1895, suffering from intestinal obstruction.

The mother stated that there had been no action of the bowels since birth. The child would not take the breast, and was fed with a spoon. It was stated never to have vomited. Enemata had been tried, but it was found that they were immediately returned. On admission the child looked pinched and ill. It was very thin, its eyes nearly closed, and pus was exuding from beneath the lids. The abdomen was greatly distended, and on examining the rectum it was found to be imperforate about an inch above the anus.

The child was, without further delay, removed to the operating theatre, where, after the administration of an anæsthetic, an endeavour was made to establish the continuity of the rectal canal. A deep incision carried upwards and backwards towards the sacrum failed, however, to find any communication above. The abdomen was then opened in the left inguinal region, and the sigmoid flexure sought for. It was found much distended, and was brought out of the wound.

At this stage the child looked bad, and it was deemed expedient to open the distended colon at once. This was done, when the escape of a considerable quantity of gas seemed at once to afford relief, as the child's breathing immediately appeared less embarrassed, and it assumed a much better aspect.

The operation was then completed by stitching the bowel to the parietes, and passing a piece of tubing through the mesentery, to prevent the possibility of any retraction of the loop. To prevent soiling of the parts with fæces, a tube was passed into the upper end of the bowel and secured there, so that fæcal material was conveyed for some short distance into the dressing away from the wound.

The child rallied well, fæces passed freely, and improvement soon became marked.

15th May.—The child seems very well. It is taking plenty of milk, and putting on flesh. The mesenteric tube was removed.

18th July.—Improvement has continued, and to-day an endeavour was made under chloroform to open up the rectal canal. A steel bougie was inserted at the artificial anus, and was found to pass easily into the upper segment of the rectum. With the finger inserted at the anus, the projecting point of the bougie could be easily felt, and not apparently separated by any depth of tissue. Its position was rather towards the sacral aspect than in the normal line. With the knife the point of the bougie was freely cut down upon, and the latter was made to project at the anus. Securing a long piece of rubber drainage tube to the bougie, the latter was withdrawn, and the tube made to follow. The two ends of the long tube were tied together, so that it was impossible for it to slip out of the rectum.

12th August.—The rubber tube was removed to-day, owing to it causing some purulent discharge to exude from both the natural and the artificial anus. The child is in good health.

From this date on to the present (1st November) bougies have been passed every alternate day. But for such dilatation the rectum at its imperforate point rapidly shows signs of contraction.

The child passes its fæces freely through the artificial anus, and the careful attention of the nurses has prevented anything like troublesome skin irritation around the fæcal orifice. The child is in good health, eats and sleeps well, but the pelvis appears to lack somewhat in development.

Remarks.—Successful cases of colotomy for imperforate rectum are rare, and rarer still is the subsequent reopening of the canal; rarest of all, however, will be the result, if we can close the artificial anus, and so direct the fæces to pass *per via naturales.* I must confess that the grave fears I have of being able to complete the third stage of the operation has tempted me to present the case before you at this stage. The seriousness of attempting enterectomy in a child so young reasonably raises the question of attempting it all. It will be years before the child is likely to be troubled by the knowledge of its abnormal condition and the inconveniences connected with it. But there are already indications of deficiency of development of the pelvis, and I venture to think that, so long as there lacks the normal distending force which a loaded rectum affords or excites, so is it only too likely that this failure in growth may create, as years pass on, more serious difficulties in other functions, anatomical and physiological, connected with this portion of the trunk.

This question of leaving matters as they are or proceeding farther, together with the more cogent question of what to do, if something is to be done, affords scope for discussion, which I trust, for my own enlightenment and guidance, will be freely indulged in by surgeons present.

[Since this patient was shown to the Society, it contracted scarlet fever and was removed to Belvidere Hospital, where it died.]

Mr. H. E. Clark said this was a case of imperforate rectum where the condition depended on an arrest in the formation of the pelvic portion of the alimentary canal. The most hopeful of such cases were those in which it was possible to reach the bowel by an incision beside the coccyx. Colotomy did not, as a rule, prove so successful as in Mr. Maylard's case. The modern method of performing inguinal colotomy, by which a loop of bowel was brought out through the wound and retained by a glass rod, was not so well adapted for cases of imperforate rectum as the old one. In the latter, where only the side of the bowel was stitched to the wound and opened, the artificial anus not unfrequently closed when a perineal opening was established, but in the new method this spontaneous cure was quite impossible, and nothing less than resection of the bowel would suffice to re-establish the canal. He acknowledged the risks of resection in so young a child, but thought it was necessary to face them in this case, and recommended that within six months the operation should be done.

Dr. Renton thought this might be a case where Dupuytren's clamp might be put on to get rid of the spur and close the artificial anus. It might be less dangerous to the child than enterectomy. Allingham had been insisting on the newer operation of bringing out the bowel. Mr. Maylard said in sigmoidostomy he found a difficulty in stitching the delicate bowel of the child. It might be suggested, why not pass a bougie down to the anus and open at once, then proceed to the former operation?

IV.—A CASE OF TREPHINING FOR INTRA-CRANIAL HÆMORRHAGE CAUSING LOCALISED SYMPTOMS.

By Mr. A. E. Maylard.

Abstract of Ward Report taken by Dr. Maclennan.—R. K., aged 9 years, was admitted into the Victoria Infirmary, under the care of Mr. Maylard, on 20th September, 1895. He had fallen over a bannister while sliding down, and had dropped about 30 feet.

On admission he was in a semi-conscious condition, could be roused slightly, and lifted up his arms when told to; the right, however, appeared considerably weaker than the left. He moved both legs. There was very slight facial paralysis on the right side. The abdominal and cremasteric reflexes on the right side were much more active than on the left, but the plantar appeared equal on both sides. The right pupil was a little more dilated than the left. On the head were four swellings, due evidently to collection of blood. The largest was situated above the left ear, a second above the right ear, a third near the vertex, and the fourth in the occipital region. He had retention of urine.

21st - 23rd September.—He remains in much the same condition.

24th September.—The patient has had two fits this morning. The first lasted a quarter of an hour, and consisted in twitchings of the right side of the face and the left leg. In about three hours after the first attack a repetition of the fit occurred. The leg was in spasm for only a quarter of an hour, but the face continued to twitch for about two hours.

25th September.—This afternoon he had a return of the facial spasm. It was clonic; the frontales muscles were implicated, and also the orbiculares palpebrarum, the right one being most severely contracted. The eyes were turned to the right. The internal rectus of the left, and external of the right, twitched, giving rise to a lateral nystagmus, over and above the rotation inwards of the left eyeball and rotation outwards of the right. Occasionally the left leg moved spasmodically.

26th September.—It is observed this morning that the muscles of the trunk on the right side are implicated. The muscles on the right side of the neck are also affected, so that the head and trunk are spasmodically jerked to the right side. In the evening there were regular clonic spasms of both eyelids and the muscles around the orbit; the mouth on the right side synchronously twitched with the spasms and the eyes. There was complete paralysis of the right upper extremity, but the right leg moved voluntarily. There were no spasms of the left leg. This fit lasted for some hours, the spasms commencing slowly, but gradually increasing in frequency. He was quite conscious, although sleeping during the fit.

27th September.—Chloroform was administered, and Mr. Maylard, assisted by Dr. Andrew, removed a disc of bone by the trephine from over the cortical arm area. Immediately on removal of the disc black blood-clot was seen, about one-eighth of an inch in thickness. The clot extended downwards between the dura and the bone. The clot was easily scraped away with the director, and altogether did not consist of more than could have been placed upon a halfpenny. Subdural tension appeared considerable, as on puncturing the dura mater a jet of cerebro-spinal fluid was forcibly ejected. The dura mater was divided by a small crucial incision, but the brain beneath appeared quite healthy. The disc of bone was replaced and the wound closed.

28th September.—There have been no fits, and there is some movement of the right arm.

6th October.—No fits since the operation. He can now use his right arm. There is some paresis of the right side of the face.

11th October.—Stitches removed; wound nearly healed.

17th October.—The wound is quite healed, and the boy is free from all signs of paralysis or spasms.

25th October.—Left the Infirmary quite well.

Remarks.—The most marked nerve symptom was the paralysis of the right arm, and this did not appear until some days after the accident. It proved the true guide in trephining, and led to an exact localisation of the lesion. The face was the part most severely and constantly affected with spasm, and this equally led to a successful search for any source of irritation over the face centre, as on passing the director in a direction downwards from the arm centre, clots of blood were found, which could be easily scooped away.

The amount of blood removed was small, but, added to the amount of tension which appeared to exist within the dura mater, it seems to have been sufficient to cause pressure and irritate the arm and face cortical areas, as well as some of the more distant centres.

That the left orbicular and palpebral muscles contracted synchronously with the right is explained by the normally associated movements of these parts; but why the left leg should have been spasmodically affected at the same time that the right side of the face was being contracted is, I think, not quite so easy to understand.

The case seems chiefly of interest from two points—(1) the limited character of the lesion, the lateness of its appearance, and the localised symptoms to which it gave rise; and (2) the exactness by which, through the aid of cerebral localisation, it was possible to successfully treat the case.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1895-96.

MEETING II.—11TH NOVEMBER, 1895.

The President, MR. D. N. KNOX, *in the Chair.*

I.—CASE OF SPORADIC CRETINISM.

BY DR. BARCLAY NESS.

E. P., a male child, was brought to the Dispensary of the Royal Hospital for Sick Children ten days ago by a sister of the mother, with the statement that, though the child was now 19 months old, he had never lost any of his "babyish ways."

During the first few months of the child's life, nothing unnatural was noticed beyond the cry, which the aunt said had always been recognised as being peculiar. This statement, however, was made in answer to a direct question. In this connection it is to be noted that the child had the "snuffles," though not in a very pronounced form, from the time of his birth.

When 3 months old the child met with a slight accident. The aunt was trying to amuse him by "throwing" him up in the air, and in doing this the head of the child struck a gas bracket. There was a wound produced, but very slight, judging from the small superficial cicatrix now to be seen. Some time after this it was noticed that the child was not developing as he should, and the friends wondered if it were possible that this slight accident could in any way be connected with this altered condition.

Though he was able to recognise his mother and aunt among strangers, yet he seemed to take little interest in any toys or anything which would be expected to amuse him. He became gradually more dull and languid, and it was only occasionally that he could be made to laugh. As he grew older no improvement was observed, though he slept and took his food fairly well. Only occasionally was there any vomiting. The bowels have tended to be a little constipated.

With regard to the present condition, the whole body of the child is "dwarfed and heavy looking," due to some degree of arrested development. Though 19 months old, the child only weighs 14 lb., and is 23 inches long. A healthy child at 12 months would weigh more, and be considerably longer.

The expression of the face has all the characters of that of a cretin. The eyes are wide apart, the bridge of the nose flat, the nose itself upturned. The eyelids are swollen, and apparently œdematous, the skin having a slight waxy appearance. The palpebral fissures are thus encroached upon, and smaller than natural. The cheeks are pale, waxy, and heavy looking, with a tendency to the presence of eczema. The mouth is, as a rule, somewhat open; the lower lip is thick, swollen, and everted; the tongue is enlarged, though not protruding, while the teeth are absent.

The circumference of the head round forehead and occiput measures 17½ inches. As regards the shape, it is narrow anteriorly and broad posteriorly; the anterior fontanelle is very patent. The veins of the scalp are considerably dilated. The scalp itself is dry and scurfy, while the hair is rather course and of a brown colour, but not dark.

The neck is short and thick, and the supraclavicular spaces well filled with adipose tissue. If the head be allowed to hang backwards, the trachea can be felt between the muscles of the neck.

In the upper dorsal and interscapular spaces there is no marked fatty development, nor the presence of any silky hair.

The shape of the thorax is normal.

The abdomen is markedly protuberant, and a small umbilical hernia is present. Any lordosis present is difficult to determine, on account of the child requiring to be supported by the armpits.

The limbs are short, broad, and stumpy, with a slight degree of curvature, but there is no enlargement of the epiphyses of the long bones. The hands and feet are broad and flat, and covered with thickened skin.

The skin over the body generally is dry, and in some parts there is fine desquamation present—for example, over left upper arm. In connection with this dry condition of the skin is to be noted the fact that though the child perspires freely over the head, little or no perspiration of the body ever takes place.

The scrotum is rather large, and the skin of it thick. There is no inguinal hernia. Temperature taken once was 98·2 F. (rectal); urine not obtained.

The cry of the child is peculiar, and like that of the cretin.

Hearing and sight, tested roughly, seem normal.

Heart normal. On examination, the lungs show presence of a slight bronchial catarrh.

Family History.—The mother was born in Lancashire, but never resided there for any length of time. Father was of Irish descent, but resided mostly in England.

This is the third child of the marriage, and the only one alive. First died at 18 months of age of diphtheria. The second died at 2 years of measles and inflammation of lungs. The mother had one miscarriage before the birth of the patient. But no further indication of specific disease could be obtained, either as affecting the mother or child.

No goitrous affection has been known to exist either in the family of the mother or father.

II.—A CASE OF SPORADIC CRETINISM.

By Dr. Middleton.

M. C., aged 2½ years, was admitted to Glasgow Royal Infirmary on 10th June, 1895, presenting the well marked signs of cretinism.

The child is stunted in its growth; the face is broad and heavy, and has the appearance of œdema; the skin is slightly glazed and pale, except over the most prominent parts of the cheeks, where there is a red flush; there is no decided yellowness of the skin. The nasal bones appear depressed, but the tip and nostrils are unduly broad.

The lips are large, thick, and everted, but there is no cyanotic tint. The mouth is constantly open, and the tongue, which is large and flabby, protrudes, whilst saliva dribbles from the corners of the mouth. There are only four teeth—two incisors above, and two below. The cheeks are large and heavy, and there is a large development of tissue in the submental region and round the neck. The division between the head and the trunk is marked by a groove. The scalp presents a tendency to scaliness. The hair is not easily extracted, and though rather thin, there is no actual baldness.

The anterior fontanelle is unduly open. The thyroid gland cannot be felt.

The skin of the trunk and limbs is dry and somewhat scaly. Over the chest, abdomen, and front of the legs and arms there is a brownish marling, whilst some of the superficial veins of the chest and neck are unduly well marked.

In the erect posture there is well marked lordosis; the abdomen, and especially the umbilicus, is prominent. The limbs are obviously enlarged, and of firm consistence. No pitting on pressure can be elicited anywhere. The child can neither sit nor stand without support, and cannot make any attempt at walking.

She is very drowsy, and is greatly wanting in intelligence. She has some difficulty in taking food, on account of the size of the tongue. When disturbed she cries greatly, and the cry is hoarse and deep in tone for a child of her age.

Protrusion of the tongue seems to have been first observed about the age of six months, and she has always been a "puffy" child; but the mother has not been of an observant nature, so that the history is very defective.

When between six and nine months old she was affected with abscesses on both sides of the neck, and these had to be opened. Otherwise she had been a healthy child, and the mother regarded the protrusion of the tongue as more important than the facts that she could neither walk nor talk.

During her pregnancy the mother was far from well, but her complaint was vague, chiefly griping pain in the abdomen. The labour was long and severe, but the child was born without the aid of instruments. The mother has had three other children, who are alive and healthy. No history in the family of any similar case.

On 17th June she was put upon ¼ gr. of thyroid tabloid twice daily, the dose being increased to ½ gr. on 27th June, and to 1 gr. on 9th July, this dose being maintained till 17th September, when it was discontinued on account of an eczematous eruption over the body, and a rise of temperature which had been going on for several days. Thyroid was resumed in the dose of 1 gr. daily on 10th October.

The effect of treatment has been highly satisfactory. The aspect is now that of an intelligent child, and she is very much stronger, though she cannot yet stand without support. She readily sits up in bed, and, with slight support, she walks in a very slow and deliberate manner. She has grown taller, but has lost weight.

Date.	Weight.	Date.	Weight.
10th June,	2 st. 0 lbs.	10th September,	1 st. 11 lbs.
25th "	1 " 12½ "	23rd "	1 " 10 "
11th July,	1 " 11 "	9th October,	1 " 10½ "
29th "	1 " 10 "	24th "	1 " 10 "
13th August,	1 " 11 "	7th November,	1 " 10 "
27th "	1 " 10½ "		

Simultaneously with the loss of weight there has been a great diminution in the girth of the limbs. The thigh has fallen from 9 in. to 8 in., the leg from 8¼ in. to 6¼ in., the upper arm from 6½ in. to 5¼ in., and the fore-arm from 6 in. to 5¼ in.

The temperatures during treatment have varied considerably. For a long time it was normal or subnormal, with an occasional rise to 100°. Later on, several irregular attacks of pyrexia occurred, with nothing beyond the eczematous rash or a little catarrh to account for them, unless they were associated with teething. She has now got all the incisors and two anterior molars in each jaw.

The tongue is now no longer protruded unduly, and the lips are not everted.

During her residence in hospital a little albumen has been observed in her urine, but never any sugar.

She has not yet acquired the art of speech.

Dr. Finlayson, in discussing the subject, reminded the members that he had brought a case before the Society some time ago. It was under treatment for some time, and greatly improved. Six or seven months after discharge it was searched out at home, and it was found the people were not well off, the treatment had not been carried out, and the feeding was not satisfactory. It was again admitted to hospital, and the treatment resumed. It was apathetic at first, but soon became active and energetic, and showed fight with the other children in the ward. This was not a favourable case for continuous treatment, as the child could not be properly supervised on discharge on account of living at a distance from hospital. In another case, 22 months old, subjected to similar treatment, but more favourably situated for supervision, a great change took place, and improvement was still going on. In another young child, living near the Western Infirmary, the same treatment was adopted, and at present this child is taking thyroid extract once a week. The weight has diminished, the belly has become less, the tongue is now within the mouth, and it is now able to stand, although before treatment it could not even sit, and a remarkable transformation has taken place in the intelligence. He agreed with the diagnosis in Dr. Middleton's case, as the patient even now presented the characters of the disease which were brought out in the photographs taken earlier in the case. With regard to Dr. Ness's case, it was a cretinoid case, but a mild form; it might be described as cretinism complicated with a syphilitic form of rickets. The child was by no means helpless, as it could sit up, and the tongue did not protrude as it does in marked cases.

Dr. Robertson said that the cases described by Drs. Middleton and Finlayson were peculiarly gratifying, as showing what can be done now as compared with the past, when such cases would simply have been sent to institutions as hopeless. Apparently those cases of cretinism which approached the myxœdematous type were most successfully treated with thyroid extract. As regards Dr. Ness's case, it was no doubt cretinous, but he quite agreed with Dr. Finlayson's remarks. There seemed to be three types of the disease—viz., (1) simple cretins, (2) semi-cretins, (3) cretinous. In this case the child was still young, and the condition might yet progress to a fuller type. We are quite in the dark as to the use of the thyroid gland, and apparently either atrophy or hypertrophy of the thyroid gland gave rise to the condition. In either case the secretion is not supplied to the system. Thyroid gland may supply this want primarily, or it may act as a cerebral stimulus. In ordinary cases of illness, such as fevers, great changes have been known to take place in imperfectly developed children. In asylum practice the thyroid extract has been tried, apparently with good results. Dr. Bruce, assistant to Dr. Clouston, treated 60 cases, and 23 recovered. Many of these cases had fallen into a chronic condition. In these cases something may have been supplied which was wanting, and the cerebral cortex may have been stimulated. As the members well knew, he had used other means to stimulate the cortex, such as hot water, at a temperature of 110° F., round the head, and cerebrin from fresh sheep's brains. These probably acted as a stimulus to the brain, and it may be supposed that thyroid extract acts in a similar manner.

Dr. Lindsay Steven objected to the phrase "syphilitic form of rickets."

Mr. Maylard hoped that Dr. Ness would bring the case before the Society after a course of treatment.

III.—A SPECIMEN OF A HEART AND PERICARDIUM FROM A CASE OF PERICARDITIS WITH PLEURITIC EFFUSION AND THROMBUS OF THE LEFT SUBCLAVIAN VEIN.

By Dr. Eben. Duncan.

In this case the cardiac valves and endocardium had not yet been examined, and the Chairman proposed that the subject should be again brought up when this examination had been made.

IV.—A SPECIMEN OF CANCER OF THE LUNG WITH ENORMOUS SECONDARY DEPOSITS IN THE LIVER.

By Dr. Finlayson.

A quarryman, æt. 55, was admitted to the Western Infirmary on 14th October, 1895. He came complaining of cough and expectoration of yellow matter, with pain and fulness in the epigastric and hepatic regions.

The severe illness seemed to date back three months, when his stomach got bad. He had been troubled with winter cough for twenty years. On examination before admission, it was supposed at first that the case might be one of bronchitis and emphysema, with unusual prominence of the liver, from depression of its upper surface and from congestion. In view of this provisional diagnosis, and of the facts of the *post-mortem* examination, the physical signs found on admission by Dr. Clow, the resident physician, are very interesting. He found comparative dulness at the right back, reaching to the angle of the scapula, with diminished vocal resonance and breath-sounds, and with tenderness on percussion there. Otherwise the only signs were those of bronchitis and emphysema, with epigastric pulsation.

Examination of the liver showed plainly that it was enlarged beyond what was supposed at first, and during his three weeks' stay in the ward its growth was quite notable, and obscure irregularities of the surface and edge became very plain. Peritoneal friction sounds and fremitus were easily demonstrated to the students, the explanation *post-mortem* being found in a piece of omentum which was adherent to the anterior surface of the liver.

After admission to the wards, the cough, which had been very loud and of an extremely harsh, hawking character, became less, and the expectoration was also less. On the other hand, the pain in the liver and stomach region became worse and worse, requiring repeated subcutaneous doses of morphia to procure relief. The temperature was not high, but reached 100° on two or three occasions. He wasted visibly. There was but little vomiting, and that only a few days before death. Jaundice did not supervene, although the colour of the patient was very dingy, and quite suggestive of malignant disease. He died on 3rd November.

The liver was of enormous size, and weighed nearly 20 lb. It was a mass of cancerous growths. A large mass of glands existed in the porta of the liver; but no cancerous disease was found in the stomach, pancreas, or intestine. The lower lobe of the right lung was condensed, and presented large drops of creamy pus, as if from bronchiectasis. The obstruction to the tubes was found in the presence of a cancerous tumour, measuring 3 by 2½ centimetres, involving the bronchus going to that part. Some small cancerous nodules were found in the condensed portion of the lung. A mass of hard, somewhat calcareous, glands was found at the root of the lung. The edges of the lungs were somewhat emphysematous, and the heart slightly enlarged.

The physical examination is very strikingly suggestive of cancer of the lung, now that we know that such existed; but I confess it did not occur to me, and I supposed the signs to indicate one of those partial consolidations which so often accompany bronchitis and emphysema. If the idea had occurred to me, it would, no doubt, have been at once set aside as extremely improbable, inasmuch as secondary deposits in the liver from disease in the lung are very unlikely to occur, although in this case this seems to have been the sequence of events.

Dr. Coats made a preliminary objection to the term "deposits in the liver" as used in the billet, as the term tended to perpetuate a radically false idea. At one time a person suffering from cancer was regarded as having something in his system which had to be deposited, but the fact was that, although the first germs were deposited, yet the lesion itself was a tissue the result of vigorous growth. The case itself proved interesting and peculiar. Permission was given to examine only the abdomen, where the primary growth was looked for, but not being found, the diaphragm was cut through and the lower lobe of the right lung was found condensed. The bronchiectasis, with distinct purulent bronchitis, suggested a tumour at the root of the lung. Cancer of the lung is very uncommon as a cause of secondary tumour in the liver. In his experience, secondary tumours have been more frequently found in the brain substance, and in the bones. It thus became a question how infection passed from the lung to the liver. The appearances, microscopically, in the liver showed that the infection had arrived there by the portal vein, as the new formation was at its onset in the hepatic capillaries and portal vein, but it seemed a long way round from the lung to the portal vein. There were indications of the path of infection afforded by the condition of the lymphatic glands of the abdomen and front of the vertebral column; these were enlarged and infiltrated with cancer, and the portal vein had apparently conveyed infection from these enlarged glands to the liver. On the other hand, the lymph channels of the lung have a connection with the abdominal glands. Not unfrequently the carbonaceous matter of the lungs is found in the lymphatic glands of the abdomen. So it was in this case, showing that the pulmonary lymphatic circulation passed to the abdominal glands. How generally, and in this particular case, does the lymphatic circulation pass from the lungs to the abdominal glands? In this case, the glands at the root of the lung were in a shrunken cicatricial condition, of old standing and probably dating from infancy, and they were partly calcified. The usual channels were blocked, and so the lymphatic circulation was diverted into the abdominal channels, and the cancerous infection followed the same course. The cancer tissue was similar in the lung and the liver, and consisted of small cells with scanty stroma. In the liver the small cells were in small nodules, showing the earlier stages, and in these the cells were crowded in the capillary blood-vessels.

Dr. Eben. Duncan said he saw a somewhat similar case last year in a patient who had suffered from lung affection for many years. The disease was regarded as a tubercular one, but in *post-mortem* examination it was discovered to be nothing of the sort. The patient had recurrent hæmoptysis for twenty five years, and had repeated attacks of general congestion of the lungs, and had râles at the apices now and again. He was a robust man, and had no appearance of cancerous cachexia. The patient died of hæmoptysis, and at the *post-mortem* cancer was found at the root of the lung, which involved the right apex, the bronchus, and the œsophagus, and there was a secondary growth in the liver. The disease did not occlude the œsophagus. During life the patient hawked up bloody mucus.

Dr. Robertson was very much interested in the cases described by Drs. Finlayson and Duncan. He had wondered how the secondary deposits came about. He thought Dr. Coats had worked out the case thoroughly, and had satisfactorily explained the infection of the liver. He thought the term secondary deposits quite correct, for the secondary growths arose from small deposits in the liver. In Dr. Finlayson's case it was noted that the area over the base of the lung behind was tender on percussion. This was of peculiar interest as regards the probable segmentary relations of the thoracic viscera, a subject which had been skilfully treated by Head and Mackenzie. We frequently meet with cases where a patient after a heavy meal has severe pain in the epigastrium and great tenderness to touch, and as the pain subsides the tender area also ceases to exist; and so with disease or acute disorders of any organ we may have associated related hypersensitive areas.

Mr. Maylard said that what exercised his thoughts, apparently in common with others present, while he listened to Dr. Finlayson's case, was the mode by which the liver had become secondarily affected. Knowing that, anatomically, lymphatics pass from the surface of the liver through the diaphragm to the subpleural tissue, he thought it possible that infection might have taken place through these channels. Such a theory, however, appeared untenable from the fact that, as Dr. Coats states, no adhesion existed between the tumour in the lung and the diaphragmatic pleural surface. He thought that Dr. Duncan's case might possibly throw some light, inasmuch as in his case the œsophagus had been implicated in the primary growth. It was known that when carcinoma involved the lower part of the œsophagus secondary growths developed in the liver. This theory, however, appeared also useless, because Dr. Coats affirms that the lower part of the œsophagus in Dr. Finlayson's case was not involved. The case would present no difficulties if there had been a more general systemic infection; but the fact that the liver appeared, so far as the somewhat limited examination of the body indicated, the only organ involved, and this, too, to such an enormous and uniform extent, the only feasible explanation seemed to be infection through the portal system. Dr. Coats' explanation was a most ingenious one, and though somewhat difficult to imagine, yet seemed to offer the most reasonable solution of the problem.

Mr. H. E. Clark thought the case detailed by Dr. Coats an interesting one. The explanation of secondary formation was not the only possible one. There was another channel, namely, the communication between the subpleural lymphatics and those of the upper surface of the liver.

Dr. Hawthorne said he showed two cases of cancer last session where, secondary formation having occurred, the route of infection seemed fairly clear. In one (which is described at p. 96) the primary growth was in the lung, and the wide infection which followed indicated diffusion by the systemic circulation.

Dr. Coats said that in Dr. Hawthorne's cases the typical course had been followed, the brain and bones having become infected; but Dr. Finlayson's case, being special, required special explanation.

GLASGOW SOUTHERN MEDICAL SOCIETY.

SESSION 1895-96.—MEETING III.

The President, ALEXANDER RANKIN, M.D., *in the Chair.*

THE TREATMENT OF PHTHISIS PULMONALIS.

BY DR. EBEN. DUNCAN.

The author sketched the line of treatment adopted in 38 cases of phthisis pulmonalis under his care in the Victoria Infirmary during the past year. Excluding 2 cases moribund on admission, of the remaining 36—4 were cured, 9 greatly improved, 16 improved, 6 remained in *statu quo,* and 1 became worse. The most important therapeutical factors were pure air (air washed and filtered before entering the wards) and an equable temperature. Medicinally, counter-irritation and antipyretics (if necessary) in the acute stage; later, frequent inhalations of a mixture of creasote, eucalyptol, and pinol in equal proportions. Internally, carbonate of guiacol and beech-wood creasote. Beginning with small doses, 60 to 90 grs. of guiacol carbonate were administered four times daily without detriment; and of creasote, 25 drops in olive oil. Creasote had also been given as a suppository. Pure guiacol had no advantage over the carbonate, but applied to the skin (20 drops on flannel covered with oiled-silk) it brought down the temperature, in one case to 90° with symptoms of collapse. Phenol was found in the urine, when the maximum dose was reached, without impairing renal functions. In one case, where was acute nephritis, the blood and albumen disappeared while the patient was taking large doses of guiacol carbonate. There was no gastric disturbance with either drug. Where a large cavity existed, intra-laryngeal injections (menthol, 15 per cent; guiacol, 4 per cent, in olive oil) had been employed with benefit, the patient lying on the affected side. Cod-liver oil and a liberal diet completed the measures.

In replying to the discussion on the paper, Dr. Duncan advocated the erection in Glasgow, by the municipal authorities, of an hospital for the treatment of tubercular diseases.

SESSION 1895-96.—MEETING V.

The President, ALEXANDER RANKIN, M.D., *in the Chair.*

I.—RETROFLEXION OF THE UTERUS AND ITS TREATMENT.

BY T. W. JENKINS, M.D.

Dr. Jenkins combated the theory that displacement *per se* is the cause of the symptoms commonly attributed to it, on the ground (1) that these symptoms are often well marked in cases of metritis without displacement; (2) that they often persist after rectification of displacement (spontaneous or effected), when such exists; (3) that they often disappear along with the signs of metritis while the uterus remains in its abnormal (?) position of flexion or version. Hence, displacements do not call for direct treatment by pessaries or otherwise. Confirmatory cases were described. The similar views of Theilhaber (*Monatschrift für Geburtshülfe*, October, 1895) were quoted. Attention was directed to the occurrence of localised paracervical œdema as a complication of metritis, with or without displacement, and a frequent cause of pelvic pain. From the form it assumes, and its relation to the supravaginal cervix, it may be taken for an enlarged and painful ovary, a subperitoneal fibroid, or even the fundus uteri, where bimanual examination is difficult.

The chief cause of the classical symptoms of retroflexion was found in constipation with its attendant evils. The treatment, therefore, was that of the general condition (stress being laid upon the necessity of rest in bed in inveterate cases) of metritis or endometritis. In regard to the latter, reference was made to the practice of introducing iodoform or other gauze into the uterus to serve the useful purpose of keeping diseased surfaces separate, and so to allow a quicker return to the normal condition.

An interesting discussion followed the reading of this paper.

II.—EXHIBITION OF BOOKS, INSTRUMENTS, AND SPECIMENS.

Dr. James W. Allan exhibited a number of interesting drawings illustrative of various forms of disease.

Dr. Alexander Paterson showed copies of the works of Scultetus and John of Goddesden (Rosa Anglica).

Dr. T. W. Jenkins showed (1) the 1678 translation of the works of Ambroise Paré; (2) forceps for introducing gauze into the uterine cavity.

REVIEWS.

Modern Developments of Harvey's Work: The Harveian Oration, 1894, Delivered before the Royal College of Physicians, 18th October, 1894. By T. LAUDER BRUNTON, M.D., F.R.S. London: Macmillan & Co.

THOSE who read with delight, nearly four years ago, his lecture *On the Method of Zadig in Medicine*, will welcome this oration by Dr. Lauder Brunton. The less serious aspect of medicine, however, is not touched upon to the same extent in this as in the earlier essay—partly, perhaps, on account of the circumstances under which the Harveian oration of 1894 was delivered. The Royal College of Physicians was still mourning the loss of its late President, Sir Andrew Clark, and the sense of this loss seems to be ever present to the mind of the orator. A year has elapsed since Dr. Brunton spoke, and more of the mighty have fallen. Two of the foremost leaders of science, whose work was eulogised by the orator, were living then, and are now departed; Ludwig died in April and Pasteur in September of last year.

The annual oration which bears his name was instituted by Harvey at the Royal College of Physicians in order to commemorate the benefactors of the College. It is not necessary, therefore, that Harvey himself should be commemorated more than others. Dr. Lauder Brunton accordingly selected different portions of Harvey's work, and showed the great advances that have been made on Harvey's results by more recent investigators.

Soon after the outset the orator warns us how the past is often forgotten in undue glorification of the present. For instance, it was discovered about twenty years ago, by independent observation, that the venæ cavæ and pulmonary veins possess the power of contraction. Yet this fact was known to Haller almost one hundred and forty years ago.

Harvey knew that drugs applied externally are absorbed, and act on the body; but, curiously enough, their action when injected into the blood appears to have been first tried by Sir Christopher Wren, the architect of St. Paul's.

Dr. Brunton pays a well-deserved tribute to the memory of the late Professor Sharpey, and also to the work and character of Ludwig. We shall quote here some of the words he uses with regard to the latter, one of his own masters (now deceased):—"Like Sharpey, Ludwig is a great teacher, and, like the great architects of the Middle Ages—who built the wonderful cathedrals which all admire, and whose builder's name no man knows—Ludwig has been content to sink his own name in his anxiety for the progress of his work, and in his desire to aid his pupils. The researches which have appeared under these pupils' names have been in many instances, perhaps in most, not only suggested by Ludwig, but carried out experimentally with his own hands, and the paper which recorded the results finally written by himself. In the papers which have appeared under his pupils' names, we find their obligations to the master recorded in such terms as 'unter Mitwirkung.' But no one except those who have worked with him can understand what such 'co-operation' meant" (pp. 13, 14).

Dr. Brunton deals at some length with the nervous mechanism of the heart and blood-vessels, and particularly of the muscular vessels. He well compares the heart—with its independent power of contraction, controlled, however, by accelerator and inhibitory nerves—to a horse which is capable of going independently, and whose pace is yet increased or diminished by the spur or rein of its rider.

Three principal methods of increasing the flow of blood through the muscles are employed in the treatment of heart disease:—(1) absolute rest in bed with massage; (2) graduated movements of the muscles of the limbs and body while the patient stands still (Schott's method); (3) graduated exercises in walking and climbing (Oertel's method). Harvey was acquainted with a certain kind of massage, for he tells of a man who "fell into a strange disorder, suffering from extreme compression and pain in the heart and breast, from which he only received some little relief at last when the whole of his chest was pummelled by a strong man, as the baker kneads dough" (p. 28).

A reference is made to the zymogens and antitoxins. This, however, is somewhat brief, for facts here are not yet so definitely ascertained, and fancy comes more into play.

Finally, the orator concludes his able address by exhorting the Fellows of the College to follow the example of Harvey and of their late President by continuing in mutual love and affection among themselves.

The Dynamics of Life: An Address delivered before the Medical Society of Manchester, 3rd October, 1894. By W. R. GOWERS, M.D., F.R.S. London: J. and A. Churchill.

ALL that comes from Dr. Gowers, versatile as he is, is welcome. He is a neurologist and a clinician of the highest order. He was, we understand, the first Fellow of the Royal Society whose etchings obtained a place on the walls of the Royal Academy. He has more recently been exerting himself to secure a position for phonography as one of the methods of clinical medicine, and now he comes before us in the *rôle* of natural philosopher.

Truth to tell, this essay or address, delivered though it was to a medical society, is no light reading. Its pages cannot be hastily scanned, but must be read slowly, and with care, if the meaning is to be fully grasped. The fundamental idea takes us back many years, to the time when we read Tyndall's treatise on the philosophic generalisation that heat is a mode of motion; and though Herbert Spencer is not named in this essay, its perusal has induced us to glance again through certain portions of the "First Principles."

It is perhaps well to point out now, as Dr. Gowers does only towards the close of the essay, that the title is somewhat misleading. It is not the dynamics of life itself that is studied, but "the dynamical processes which occur under the influence of life." The author starts with the assumption that all the elementary physical forces—sound, light, heat, electricity, &c.—are modes of motion. The movement is of the molecules, submolecules, and atoms which make up the mass that is giving off sound, heat, &c. Alterations in the physical condition of a body—in its temperature, electrical state, &c.—are due to alterations in the character of the movements of its constituent atoms. Each atom is subject to the action of two opposing forces, the one causing separation from, and the other causing attraction to other atoms. The force of attraction limits the amount of separation, and according to the preponderance of the one or other force will be the dissociation or the more intimate association of atoms that results.

The essay consists of a short introduction, followed by four distinct sections on (1) latent chemical energy; (2) the dynamics of muscle; (3) the dynamics of nerve; and (4) the dynamics of disease. There is, in addition, a short appendix on stimulation. The first section deals with the fundamental doctrine that the physical forces are modes of atomic motion. The second section explains the application of this theory to muscular contraction. Muscular fibres in contracting undergo a simultaneous increase in width. This is due to "a movement of the atoms, so that they come to occupy, in considerable proportion, a transverse instead of a longitudinal relation. But in this change of shape and change of relation, there is an escape of atoms from the muscle—of the atoms that unite with oxygen and pass away—and there is also the escape of what we call 'submolecules,' which pass away as the more complex products of muscular action. It seems impossible to dissociate the two—change of shape and escape of atoms. The atoms can only pass away at the surface, by a lateral movement such as is involved in the increased width. It seems reasonable to associate this transverse lateral movement with the peculiar structure of the fibres which we recognise in their general aspect, as 'transverse striation'" (p. 25). The stimulus that calls forth muscular contraction is conceived to be a mode of motion, and according to the theory advanced in the essay, "it would seem that the atoms, being released from the attraction by which they were before held in consequence of the added motion, yield to the attraction of the extraneous atoms of oxygen. These are necessarily chiefly at the exterior of the fibre or fibril." In this way the previous oscillatory motion of the atoms is made uniform and converted into massive motion (p. 27).

In the section on the dynamics of nerve, the nature of nerve force is considered. The idea that this is electricity is excluded by the fact that each axis-cylinder is now recognised as consisting of a great number of fibrils, each of which is a separate conducting path. Dr. Gowers advances the opinion that the source of all nerve energy is the same form of latent chemical energy that is released in muscular action, differing in character only in accordance with the difference in the elements with which it is associated. For it must be borne in mind that the compounds of which nerve tissues consist are the most elaborate known to us, and are extremely unstable in their chemical equilibrium. This may possibly be due to the presence of phosphorus, an element which has naturally an atomic motion in excess of its restraint. The two facts—first, that the fibres which conduct are continuous with the structures in which nerve impulses arise, and, second, that nerve fibres are excitable as well as grey matter—suggest that the functions of generating and conducting structures differ only in degree, that conduction is of the same nature as production, and that chemical action underlies both. If we remember the rapidity with which a train of nitro-glycerin or of gunpowder will explode, it may be the easier to comprehend how conduction so rapid as that of nerve force may be the result of chemical action (pp. 33-38).

In the nerve tissues where impulses originate, there are no elements comparable to those of muscular tissue. With this fact we ought to associate the modern view that the changes occurring in a muscular fibre during the latent period, before the actual alteration in form begins, are those which properly correspond to the nervous impulse.

We may simply mention here that the section on the dynamics of disease touches on the subjects of epilepsy and inhibition. But no summary can do justice to an essay of this kind. Time and patience are required for its thorough appreciation. For ourselves, we do not think that Dr. Gowers is at his best here; we prefer to meet him in the clinical field. But we fully admit that it is well that a subject so difficult as that with which this essay deals should be introduced to us by one so competent as Dr. Gowers, and so certain, by virtue of his scientific eminence, to command attention.

The Tallerman-Sheffield Patent Localized Hot-Air Bath: being a New Invention for the Treatment of Rheumatism, Gout, Rheumatic Arthritis, Stiff and Painful Joints, &c.; with Notes of Cases Treated. London: Baillière, Tindall & Cox.

THIS new bath is made for a therapeutic purpose, and has been brought forward solely under the auspices of the medical profession. The object is to allow of the application of great heat to different parts of the body. A few statements of fact will help to make clear some of the difficulties that have been overcome in this new invention. Hot water begins to cause pain at about 115° F., and steam can scarcely be borne above 120°. Hot air, *when dry*, can be tolerated up to 300° or higher. In the tepidarium, or first room of the Turkish bath, the temperature is between 110° and 120°; in the calidarium, or second room, it is between 130° and 140°. It would be hazardous for most people to breathe air much hotter than that of the Turkish bath, but the air of the Tallerman-Sheffield bath is not inspired, and so can be safely heated to 250° or 300° F. The practical limit of temperature in the Turkish bath is about 170°, because in such heat, the profuse perspiration quickly moistens the air of the room, and causes discomfort. Even a single limb cannot be exposed to an extreme temperature in a closed chamber for more than a few minutes, because the perspiration resting on the skin begins to scald when 200° is reached, or even sooner.

The Tallerman-Sheffield bath consists of a copper cylinder whose form varies according to the part of the body to be treated. The limb enters at one end, surrounded by rubber sheeting. The heat is derived from gas-burners placed underneath the cylinder. The temperature is indicated by a thermometer whose bulb is inside the bath, and the most notable feature of the whole contrivance is an arrangement for ventilating the bath so that the moisture transuding from the integuments can be removed. The result is that a very high temperature can be borne for a long time, not merely without discomfort, but actually with a pleasant sensation. The apparatus can be easily used in a private residence.

The following are some of the physiological effects of prolonged immersion, for instance of the arm, in the bath:—(1) profuse perspiration locally; (2) very active hyperæmia of the skin; (3) relaxation of the tissues; (4) perspiration over the whole body; (5) elevation of the temperature of the whole body by one or two degrees.

Of the therapeutic results, the marked anodyne effect of the bath is one of the most important. Stiff and painful joints become more easily moved. The bath seems to give great relief to the pain which ensues on the forcible breaking up of adhesions under an anæsthetic.

The bath has been tested in the treatment of various affections in different hospitals in London and elsewhere, and notes of a considerable number of cases are published in this brochure. Some of the results in bad and even hopeless cases are indeed striking, and the bath certainly deserves the careful attention of physicians who are in despair of the recovery, under the more usual remedies, of severe and old-standing cases of rheumatism, rheumatoid arthritis, and some other diseases. In May of last year, Mr. Willett of St. Bartholomew's Hospital gave a clinical lecture on the uses of high temperatures applied locally to the surface of the body, and on the use of the Tallerman-Sheffield bath. This lecture is reproduced in the present work. Mr. Willett met with cases in which the results of treatment by the hot-air bath were disappointing, but on the whole, he seems to consider that it possesses a distinct value, for he expresses the hope that his hospital will soon possess such a bath, and that a nurse will be available who has been trained to use it.

To judge from the account of it given in this work, we are disposed to welcome the Tallerman-Sheffield bath as a therapeutic agent of some value, and we should certainly be glad to give it a trial in suitable cases.

The Practice of Massage: its Physiological Effects and Therapeutic Uses. By A. Symons Eccles, M.B. London: Macmillan & Co. 1895.

This is a very good book by a master in the art of massage. No space is lost over the historical aspects of the subject. In an appendix, however, a list of works on this subject is given, which will be an advantage to those who wish to pursue the subject further. The book is supplied with a full index.

The description of the manipulations is full and intelligible. He gives the physiological effects as produced by each manipulation, and by massage as a whole. He affirms that tactile sensation is improved, that the sensibility of the skin to electrical currents is greatly increased, that the general body temperature is temporarily raised, respiration increased in depth and frequency, and that in general we have an addition to the body weight. He states that the red blood corpuscles are increased in number, but he believes that this may be due to the excessive elimination of fluid by the kidney, producing a denser condition of the blood. The elimination of uric acid is also augmented.

From these large results he mentions the various diseases in which he has found massage useful. In skin diseases he names scleroderma, psoriasis, alopecia, acne, and comedones.

In myalgia and muscular rheumatism the results are remarkably favourable. He accepts Dr. Haig's view that rheumatic myesitis is due to the deposit of uric acid within the muscle sheaths, and that in massage we induce a greater flow of blood to and through the part, which leads to the solution and ultimate removal of this acid. In chronic articular rheumatism he suggests a combination of massage, galvanism, and passive and active exercises. In dislocations, after replacement and after all inflammation has subsided, massage, he says, is extremely valuable, and also in the after-treatment of fractures.

In the disorders of digestion, he has great faith in abdominal massage. He has tested the secretory, the absorptive, and the motor functions of the stomach by the various tests described in Ewald's book, both before and after the use of abdominal massage, and in every case these functions have been improved by the treatment. It would have been much better, however, had the author given the details of Penzoldt's test and Gunzberg's capsules. The reagent for testing the free acid of the stomach is called phoro-glucin vanillin; but this, we presume, is a misprint for phloro-glucin vanillin. He employs massage in both chronic constipation and chronic diarrhœa, and he gives a very lucid explanation of a seeming contradiction. He finds it useful in obesity, uric-acidæmia, glycosuria, oxaluria, and leucomaïnuria; in rickets, lateral curvature of the spine, and myxodema. He finds it valuable in functional disorders of the nervous system, and in peripheral rather than central affections; but even in paralysis of central origin some benefit can be obtained from massage. In neurasthenia he has observed that the leucomaïnes are in excess in the urine, and under massage for the first few days these are increased; but if the treatment be continued, they are diminished to a great extent.

Upon the whole, we recommend the book as a valuable contribution on the subject of which it treats.

An Essay on Malaria and its Consequences. By ROBERT LINDSAY, A.M., M.B., F.R.C.S.E. London: H. K. Lewis. 1895.

THE author tells us that it has been his lot to see a great deal of malaria, and to suffer personally from its baneful influences, not only while on service as a surgeon in the army medical department, but also at a later date when in practice in a rural district in England. Most of the contents of this book, moreover, were thought out and roughly put together about a dozen years ago, so that Mr. Lindsay feels entitled to ask that his new theory should get the fair consideration which is due to the claims of one who is no mere tyro in the subject with which he deals.

The work consists of five sections, entitled, "Malaria," "Carbonic Acid," "Disease," "Identification," and "Treatment." In Section I the author affirms that malarial disease is not communicated from person to person, and that the poison is not a communicable germ or bacillus. He then discusses the normal constituents of the atmosphere, and after putting aside oxygen and nitrogen as harmless, he proceeds to show how hurtful to man is an excess of carbonic acid, and how this gas actually is particularly abundant in exactly the same kinds of localities as those in which malaria prevails. The fourth ordinary component of the atmosphere—watery vapour—is regarded as being in itself innocuous, though it may assist in the conveyance of the true poison of malaria. In Section II, we find discussed, in some detail, the phenomena of death from carbonic acid poisoning. The author thinks that, from the beginning to the end of human life, carbonic acid slowly but continuously accumulates in the body, and he attributes to this the changes that supervene in the tissues as age advances. This slow accumulation of carbonic acid is a normal fact in the life of man, but in Section III an attempt is made to show that under certain circumstances the amount of this gas present in the system may be considerably increased, with the consequence that conditions actually amounting to disease may be induced. Such increase may be due to diminished excretion from the body, or to increased production within the body, of carbonic acid, or, in the third place, to the presence of an abnormal quantity in the atmosphere or in the drinking water. The author traces at some length the morbid processes that may be expected to ensue. He has, however, one good word to say for carbonic acid, for he recognises it as possessing an antiseptic property. It may therefore prove as hostile to the germs of disease as to the victim of the germs.

In Section IV it is claimed that the arguments set forth in the earlier portions of the work will make it plain to those who have studied them, and who have also a thorough acquaintance with malarial disease, that the effects of carbonic acid and the effects of malaria "are so alike that there is little or no ground left for disputing their identity." Consistently with this view, the author holds that no "acclimatization" of the human constitution to a malarious region is possible or conceivable. He narrates half a dozen cases to show how the undoubted results of malarial poisoning are in great measure identical with the consequences of carbonic acid poisoning.

In the last section, the author ventures to express the hope that the new light thrown upon the identity of malarial disease will lead to an improved method of treatment. He depreciates the value of quinine, and praises the haloid salts and acids. He finds the most useful chlorides to be those of ammonium, iron, and sodium, though the chloride of potassium is also of service in certain cases. The bromide of ammonium is another haloid salt which is recommended, and the author thinks that free hydriodic acid may be useful. Belladonna is a useful auxiliary, but it must not be administered for any length of time. Arsenious acid and ergot have also their place in the treatment of ague. The volume closes with a few remarks on food, drink, and bodily warmth.

Mr. Lindsay deserves credit for the painstaking manner in which he has worked out his theory, but we greatly doubt if, in the light of recent researches, medical opinion will be much moved in the direction of this new speculation.

The Life of Sir Henry Halford, Bart., G.C.H., M.D., F.R.S., President of the Royal College of Physicians, Physician to George III, George IV, William IV, and to Her Majesty Queen Victoria. By WILLIAM MUNK, M.D., F.S.A. London: Longmans, Green & Co. 1895.

ONE can scarcely glance at this sumptuous volume, not to speak of reading it, without being forcibly reminded of the saying, *Sic transit gloria mundi.* We doubt if one in twenty of the younger practitioners of to-day ever heard the name of Sir Henry Halford, and yet for nearly a quarter of a century he held the most exalted position open to a medical man, that of President to the Royal College of Physicians, in addition to being the leading court physician under three reigns. The reason of this is, perhaps, not far to seek. Sir Henry Halford, so far as we have been able to read, owed his exalted position rather to his social influence, his graceful latinity, and his unequalled *savoir-faire,* than to his attainments in scientific medicine. His biography contains no account of any permanent contributions to medical science or literature, but it is well filled with, on the whole, monotonous and uninteresting letters from kings, royal dukes, and personages. This, we think, is the real reason why his name to-day is so absolutely unknown in the ranks of the medical profession, and why the bronze memorial tablet has never been erected in the Royal College of Physicians. It is essentially because Halford's was a case of *gloria mundi* rather than of *gloria medicinæ*, that his name has been all but forgotten by his successors. He was, however, a good classical scholar, fond of writing Latin verses, which were much admired by the Duke of Wellington, who sent him a pipe of Madeira, and he was also an industrious writer of letters. As a scientific physician he was not to be compared with his great contemporary Matthew Baillie, and we would gather, especially from his letter to Dr. Scudamore, that he had some difficulty in keeping abreast of the progress of scientific medicine in the early decades of the present century. A biographer is in duty bound to maintain the reputation and status of his subject, but it strikes us as rather feeble in speaking to attainments as a scientific physician to urge that the physician as a student attended with diligence the lectures delivered in the foremost medical school of the day. Yet it is chiefly on evidence of this kind that his biographer bases Sir Henry's claim to rank as a scientific physician. We are afraid that on the whole we must agree with Sir Benjamin Brodie "that Sir Henry Halford, although a clever and sagacious physician, with a great deal of practical information, was without any of that scientific knowledge which is necessary for a right diagnosis of disease." The following sentence gives us, perhaps, a very true idea of the secret of his success:—"A lady of the highest rank is reported to have declared she would rather die under Sir Henry Halford's care than recover under any other physician." This lady must have been a very foolish person to declare anything of the kind, but her declaration is not without importance in its bearing upon the secret of the great success of her esteemed physician.

Dr. Munk, in spite of a difficult and delicate task, has executed his work most skilfully, and has produced a very readable book, the only tiresome portions of which are the letters from exalted personages. These letters are for the most part without human interest, but they help to fill up.

Aids to the Mathematics of Hygiene. By R. BRUCE FERGUSON, M.A., M.B., M.C. Cantab. London: Baillière, Tindall & Cox. 1895.

ALTHOUGH this is but a small book—of some 90 pages—it will prove of the greatest value to students who are about to proceed to degrees and diplomas in Public Health. Hitherto, in text-books on Public Health, the explanation of the formulæ used is either of the most meagre character or is completely awanting. This is not sufficient for the ordinary student; so he hails with welcome an aid like this, where the explanation, physical or mathematical, is fully given. From our experience, the student hitherto has proved weak on these formulæ; now he has no excuse. The formulæ which are used in Public Health teaching and examinations claim many sources—viz., chemistry, physics, pneumatics, dynamics, algebra, &c. All of these are dealt with in the book. The problems of meteorology, of ventilation, of rainfall and sewage, of energy and exercise, of hospital ward construction, and of vital statistics, all receive full and adequate explanation. In like manner, the mode of calculating quantities for standard solutions, and the "working power" of gaseous disinfectants, are dealt with. As an excursion into the less-trodden paths which the student of medicine has to tread, the book focusses an amount of information which is not to be found in such small compass in any one single book; and hence it will prove to the student of Public Health a very valuable assistance. The book deserves every success—a success which, we venture to say, is likely to repay the trouble of the author.

Aids to the Analysis of Food and Drugs. By T. H. PEARMAIN and C. G. MOOR. London: Baillière, Tindall & Cox.

THE intention of this little book, as the authors state in the preface, is to supply a compendious guide to the analyses of most of the common articles of food and drugs which are the subject of investigation under the Foods Adulteration Acts, and not as a cram-book. Very many sources have been drawn upon to provide its contained information; and while the authors have, in the main, provided the best processes now used in analytical investigation, there is here and there to be observed a want of up-to-dateness, but that, however, rarely. They have also provided from their own experiences some very valuable information, which will be of importance to the student in his work in the laboratory.

If we were to single out as excellent specimens of the subjects treated, we would especially mention the investigation of milk, butter, alcohols, and poisonous metals in foods. Not only do the authors fully explain the best processes for the chemical examination of milk, but they also give the necessary information for the means of detecting the bacillus of tuberculosis. In view of the fact that town-fed cows are not infrequently affected by tubercular disease, and of the fact that hand-fed children are supplied with such milk, the subject fully deserves all the importance the authors give to it. The detection of Formalin—the latest milk-preservative—is also explained as fully as it can be at present.

In the analysis of butter, the authors recommend the Reichert-Meissl method for the estimation of the volatile fatty acids. The objections to this process are, the absorption of CO_2 and the loss of butyric ether during the process of boiling off the alcohol. We prefer Wollney's modification of the above process, whereby the above objections are obviated.

But in the space at our disposal it would be impossible to deal with each subject in detail, and we conclude by stating that the student will find it to be a safe guide in his work, and that it supplies, in a condensed manner, information only to be found in more elaborate manuals or chemical journals. The useful data at the end of the book will prove very handy. We wish the little book much success.

Diet in Sickness and in Health. By MRS. ERNEST HART.
London: The Scientific Press, Limited. 1895.

MRS. HART'S book will be interesting and useful to a wide circle of readers, and will come as a blessing to many households in which the proper feeding of an invalid is a daily recurring anxiety. To the physician, too, the book will be of the very greatest assistance.

The chapters on diabetes are specially valuable, principally because the authoress has departed from the time-honoured custom of dealing in generalities, and tells accurately how the object of keeping starch and sugar out of the food is to be attained, and yet the meals made palatable and varied. The addition of detailed menus for a week's breakfasts, lunches, and dinners, in summer and in winter is distinctly valuable.

Along with the practical part of the work are chapters on the theories which guide the physician in his orders, and short summaries of the facts on which such theories are based. These will, of course, tend to make the patient and his friends more interested in the carrying out of the medical orders.

Early Scoliosis. By PERCY G. LEWIS, M.D. London: John Ball & Sons.

A SMALL book of 49 pages, in which the author gives an account of the etiology and pathology of scoliosis, with details of certain exercises which he has found useful in the early stages of this condition. We believe that excellent results may be obtained by less complicated exercises than those recommended by the author, which, however, would be admirable if the surgeon had plenty of time to superintend, or if a gymnastic master were employed. The little book is well got up, printing and plates both being good.

The Conditions of Radical Cure in Cancer, &c. (Reprinted Papers.) By HERBERT SNOW, M.D. Lond. London: J. & A. Churchill. 1895.

A REPRINT of four papers by Dr. Snow, three of which deal with the subject of "Cancer." Under this term the author also includes sarcomata. He emphasises the importance of early recognition of the disease, and early operation with the removal of the nearest glands in all cases of cancer, and gives brief notes of 21 cases where this routine had been carried out, the patients living for periods of from two to twelve years afterwards, results which are highly satisfactory. In the paper on "the conversion of benign tumours into cancer," we think Dr. Snow is somewhat unfair when he writes "the possibility of such an occurrence having hardly been yet fully recognised by English pathologists."

Dr. Snow lays stress on the importance of early administration of opium in those cases where surgical treatment is not possible, and we think most surgeons will agree with him that this drug seems to prolong life in such cases.

In the fourth paper, which relates to "tumours of the breast which are dispersible without operation," the author writes that "foremost among the latter is the tumour described in my works . . . as the 'fibroma of adolescence,'" and describes cases where such "tumours" have been dispersed within so short a time as seven days. We have some difficulty in looking on these as cases of fibromata—they appear rather to have been cases of localised mastitis, and if so, do not deserve the term "tumour" in the sense of being neoplasms.

The Diseases of Children's Teeth: their Prevention and Treatment. By RICHARD DENISON PEDLEY, L.D.S., M.R.C.S., &c., &c. London: Segg & Co. 1895.

WHEN, in 1848, the elder Tomes published his classic lectures on Dental Surgery—a book somewhat difficult to procure—he modestly told his readers that the work was one for beginners. Mr. Pedley, in his preface, places his relationship as teacher with taught on a somewhat similar footing, and we congratulate both upon the result. While there is, perhaps, nothing in the work which the average student of dentistry should not know, the medical student and practitioner will find many valuable hints not only for urgent operative measures, but also suggestions as to oral hygiene which are, in the majority of cases, either unknown or, if known, are not sufficiently appreciated. The general practitioner may learn, with a feeling akin to wonder, "that there is strong reason to suspect, and even to believe, that many of the diseases of the nervous system, diseases of the respiratory organs, diseases of the alimentary canal, may be due—in some cases directly, in others indirectly—to the fact that the masticatory organs have been neglected;" but the truth of this no dental surgeon will question. Much has yet to be done in the direction indicated by Mr. Pedley's useful book, and we trust his good precept will bear fruit in more intelligent, and consequently more extended practice. In addition to excellent matter, the work has the advantage of being both well printed and illustrated, and, above all, the author sets future dental authors the example of giving minute reference to the labours of other observers, which in most dental literature is sadly conspicuous by its absence.

The Methodical Examination of the Eye, being Part I of a Guide to the Practice of Ophthalmology. By WILLIAM LANG, F.R.C.S. London: Longmans, Green & Co. 1895.

WE have lately read so many books that are intrinsically bad or carelessly written, that it is a pleasure to find a genuinely good book. The little volume before us is excellent, and we can cordially recommend it to junior students. It contains an immense amount of most useful and important information condensed into little space. Mr. Lang is to be heartily congratulated on his work; and if the parts yet to appear are as good as the one which we have perused, the completed book should be very popular with students and practitioners. The author has not written a treatise, nor yet a text-book, but has brought together a systematic set of notes which cannot fail to be of use to the student of clinical ophthalmology.

Eyesight and School Life. By SIMEON SNELL, F.R.C.S. Ed. Bristol: John Wright & Co. 1895.

IN this book we have a consideration of the causes which lead to the development of myopia during school life. It is shown how the lighting of school rooms, the construction of seats and desks, the printing of school books and music, and many other things are to be considered in relation to this subject. A faulty direction of the light entering the school-room will cause faulty illumination of the copy book and necessitate a strain on the eyes and closer approximation of the book to them. Again, a too high desk will also cause a bad position of the child with reference to the copy book, with the same result.

The book is well illustrated with prints from photographs, and will be found full of useful hints to parents and school teachers, to whom, indeed, it was in the first instance addressed.

The Medical Digest; or Busy Practitioner's Vade-Mecum: Appendix, including the years 1891-2-3-4, and to August 1895. By RICHARD NEALE, M.D. Lond. London: Ledger, Smith & Co. 1895.

THE value of Neale's Digest to medical men, both to hospital physicians and surgeons, and to busy general practitioners, as a most valuable means of bibliographical reference, has too often been insisted upon to render it necessary for us to direct the attention of our readers to it at present. We have great pleasure, however, in reminding them that the present appendix brings the work down to August, 1895, and in cordially recommending them to complete their copies of the work by purchasing the continuation, or if they have never possessed the entire book, to get it at once.

Annual of the Universal Medical Sciences: a Yearly Report of the Progress of the General Sanitary Sciences throughout the World. Edited by CHARLES J. SAJOUS, M.D., and Seventy Associate Editors. Five Volumes. Philadelphia and New York: The F. A. Davis Company. 1895.

THE 1895 issue of this great annual summary of Medical Literature is quite up to that of former years, and the wonder is, not that its appearance is rather late, but that the Editor is able to publish such a work annually at all. The volumes constitute a perfect storehouse of abstracts from current literature, and must be of the greatest service to all desiring to consult the most recent literature in any department of medicine. Several changes have taken place in the staff of associate editors, but the general plan of the work remains unchanged. We wish Dr. Sajous every success, and hope he will be able to issue his "Annual" for many years to come.

A Smaller Atlas of Illustrations of Clinical Surgery, consisting of 136 Plates, with Descriptive Letterpress. By JONATHAN HUTCHINSON, LL.D., F.R.S. London: West, Newman & Co. 1895.

READERS of Hutchinson's well-known *Archives of Surgery* will be familiar with the excellent coloured plates illustrative of disease contained in this "Atlas," as all of them have already appeared in that periodical. In the form of a smaller atlas the valuable collection of illustrations cannot fail to be of the greatest service to medical practitioners. The plates are grouped together in a volume of convenient size, and the letterpress gives a sufficient account of the illustration, which, if necessary, can be more fully studied by referring to the number of the *Archives* in which the plate was first published.

The volume, in our opinion, will be simply invaluable to every clinical teacher, be he surgeon or physician; and we sincerely hope that before long the talented author will be able to publish "a second volume of the *Smaller Atlas.*"

We must also compliment the publishers upon the accuracy and beauty with which they have executed their portion of the work.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

PHYSIOLOGY.

By WILLIAM SNODGRASS, M.A., M.B., C.M.

Autoscopy of the Larynx and Trachea.—Kirstein has devised a method which renders it possible to examine directly with the naked eye the larynx and the trachea down to its bifurcation. The pharynx and epiglottis are carefully cocainised, and the patient lies with his head hanging over the edge of a table. The autoscope is now introduced into the mouth. This consists of a short wide tube ending in a half tube or open channel, and to it is connected a Kasper's rectangular electroscope. The instrument glides along the posterior wall of the pharynx to the level of the cartilages of Santorini, and is there, by a kind of leverage movement, lifted up so as to press forward the tongue and epiglottis. The larynx and trachea can now be directly seen. The autoscopic appearance is much superior in form and clearness to the laryngoscopic picture.—(*Wiener Klin. Wochenschr.*, 1895, 29.)

Glycogen in Lymph.—A. Dastre has examined lymph obtained by artificial fistula from the thoracic duct of a calf. He finds that lymph contains an appreciable quantity of glycogen, which may be separated by the methods of Kulz and Brücke. The maximum quantity obtained was 0·097 per cent.

The glycogen is destroyed in the lymph, in less than twenty-four hours, by a diastasic ferment. By a direct research, MM. Bial and Rohmann have demonstrated the existence of this ferment in the living circulating lymph.

The glycogen appears to be connected with the corpuscles of the lymph; it is absent from the plasma, its presence there being incompatible with that of an amylolytic diastase.—(*Archiv. de Physiol. Norm. et Patholog.*, July, 1895.)

The Amylolytic Ferment of the Blood.—A. Tcherevkoff finds that an amylolytic ferment (hæmodiastase) exists in small quantity in the blood. Its power sensibly diminishes with lapse of time after blood is shed. It passes for the most part into the serum of coagulated blood. Blood, which is prevented from coagulating by means of oxalate of sodium, preserves its ferment for a considerable time (ten days). The presence of the oxalate does not prevent the action of the ferment.—(*Archiv. de Physiol. Norm. et Patholog.*, October, 1895.)

Intermittency of the Pulse.—Leyden has attributed the intermittency of the pulse in mitral insufficiency to want of systole of the left ventricle, while the right ventricle at the same moment contracts. This condition he calls hemisystole. François-Franck, upon clinical and experimental grounds, alleges that mitral hemisystole—that is to say, a double pulsation of the right ventricle in opposition to a single pulsation of the left ventricle, does not exist in mitral insufficiency, either in man or in animals. Intermittencies of the pulse in mitral insufficiency (as in analogous arythmic troubles without mitral lesion) are due to abortive systoles of the left and right ventricles, and these abortive systoles are synchronous. There is no mechanism of redoubled systole localised in the right ventricle, nor is it a supplementary systole of the right ventricle that leads to hypertrophy of the left ventricle in mitral insufficiency.—(*Archiv. de Physiol. Norm. et Patholog.*, July, 1895.)

The Existence of Anastomotic Arterio-Venous Channels.—G. Gerard describes a system of anastomotic arterio-venous vessels, whose existence can be demonstrated by general and local injection, by dissection, and by microscopical examination. Their length varies from 0·5 cm. to 6 cm., their diameter from 0·4 mm. to 3 mm., and they give direct connection between arteries and principal or collateral veins. They are situated at divers points, and do not correspond to the branches usually described. They exist alike in infants and in adults. They are often found at points remote from the heart, and bear no relationship to the ordinary irrigation system of the capillaries. Physiologically they form a derivative system for the extremities, their chief function being connected with the maintenance of the temperature of the extremities, and the regulation of the nutritive exchanges in the parts constantly exposed to the external air, and remote from the heart.—(*Archiv. de Physiol. Norm. et Patholog.*, October, 1895.)

Antitoxic Action of the Tissues and Organs of the Body.—Abelous finds that a solution of sulphate of strychnine, or of curare, when brought into contact for a certain time with various organs, seems to undergo a diminution of toxicity. A part of the alkaloid seems to be fixed and destroyed by the organs. Different organs vary in their antitoxic power. Experimenting with living tissues, it is found that not only the liver, but muscle also can retain, fix, and destroy a certain quantity of strychnine. It is by this fixation and partial destruction rather than by slower absorption, or greater dilution, that we can explain the fact that to kill an animal a stronger dose is required if the poison is injected into an artery or a portal vein, than when it is injected into an ordinary vein.—(*Archiv. de Physiol. Norm. et Patholog.*, October, 1895.)

The Cerebral Pulse.—An interesting set of cerebral pulse tracings is shown by Binet and Sollier in the *Archiv. de Physiol. Norm. et Patholog.*, October, 1895. They show the influence exercised on the cerebral volume by the position of the head, by respiration, and by psychical acts. They demonstrate that mental work produces a slight increase in the volume of the brain. Their results are, in the main, confirmatory of those of Mosso, but they also let us see how experiments of this kind are open to numerous causes of error arising from change of posture or from respiration.

MATERIA MEDICA AND THERAPEUTICS.

By C. O. HAWTHORNE, M.B., C.M.

The Treatment of Exophthalmic Goitre.—Dr. Wm. C. Krauss urges the use of strophanthus for the purpose of relieving the tachycardia so common in Graves' disease. He supports this recommendation by quoting an experience of ten cases treated by strophanthus with uniformly good results. His paper does not give details, but it may be noted that in one case the drug was administered for a period of six months. Ferguson of Troy is quoted as having a similar measure of therapeutic success.—(*Medical Press and Circular*, 28th August, 1895.)

In a clinical lecture on exophthalmic goitre (*Clinical Journal*, 13th November, 1895), Dr. Arthur J. Hall thus summarises his experience of the various medicinal methods:—(1) Belladonna, occasionally beneficial, and always worthy of a thorough trial; (2) local application of cold by Leiter's tubes to the præcordium, in some cases much relief, but this is only temporary; (3) Faradism to the pneumogastrics—one pole on the neck, the other over the heart—has often caused considerable temporary improvement; (4) removal of a portion of the thyroid gland. Dr. Hall has had experience of this method in one case. The patient was a young woman æt. 23, and the right lobe and isthmus of the thyroid were removed by Dr. Sinclair White. For a time after the operation patient appeared to improve, but in the course of a month or so she had relapsed into her former condition.

In his lecture, Dr. Hall quotes two cases of Graves' disease, in which, on *post-mortem* examination, enlargement of the thymus was discovered. He has tried feeding on extract of thymus gland, but without good results. Success has, however, followed this form of treatment (see *British Medical Journal*, 16th February and 21st September, 1895).

Dr. Cheadle (*Clinical Journal*, vol. iv, p. 347) regards opium as the drug which on the whole exerts the most favourable influence in controlling the palpitation, vomiting, and diarrhœa. Small doses of opium are also recommended by Dr. Goodhart in his lectures on *Common Neuroses;* he also advocates rest, with the administration of strychnine, cod-liver oil, and other remedies which are likely to improve the condition of the nerve centres.

Dr. Watson Williams (*Clinical Journal*, vol. vii, p. 93) reports a case of Graves' disease with unilateral symptoms. He tried both thyroid and, subsequently, thymus treatment, but each rather aggravated the condition than otherwise. The recognised antithesis of myxœdema and Graves' disease suggested to him as a therapeutic measure the injection of serum (obtained from blisters) of myxœdematous patients, but the result was negative. Peripheral stimulation, by the application of the galvano-cautery to the nasal mucous membrane, had a favourable influence on the proptosis.

Some New Vaso-Dilators.—In the Bradshawe lecture, Dr. J. B. Bradbury gives an account of a research he has conducted with a view to discover some substance which might be used for the purpose of causing a continued dilatation of the arterioles, and consequently a prolonged diminution of blood-pressure. Starting from the fact that the alcoholic nitrates are all, in so far as they have been examined, vaso-dilators, Dr. Bradbury argued that the desired substance might possibly be found amongst the nitrate derivations of the higher alcohols, and proceeded to test a number of these substances. As a result of his experiments, he has selected erythrol nitrate and mannitol nitrate as substances having a prolonged dilating action on the arterioles. Neither of these is anything like so prompt or so energetic in its dilating action as ethyl or butyl nitrite, and neither is therefore of value in giving ready relief in attacks of angina pectoris. But, on the other hand, the arterial tension which begins to fall about fifty minutes after the administration of a dose of erythrol or mannitol nitrate continues to fall for fully an hour and a half, and does not regain its normal height until fully five hours have elapsed. In the power of maintaining continuous low tension these substances are thus in advance both of nitro-glycerine and sodium nitrite, the action of each of these latter being exhausted in about two hours after administration. Dr. Bradbury is therefore of opinion that his research has increased our resources for preventing attacks of cardiac pain associated with increased arterial tension, and for lessening the risks which attach themselves to the high tension of chronic renal disease. The dose of each of these organic nitrates is one grain repeated every four or six hours. They are best administered in solution in alcohol.—(*British Medical Journal*, 16th November, 1895, p. 1213.)

Mr. Hutchinson on the Mercurial Treatment of Syphilis.—In a recent conference at his clinical museum Mr. Hutchinson deals with this subject, more especially as bearing on the question of the marriage of men who have had syphilis. He believes that, given a two years' interval since the date of the chancre, and proper treatment of the individual during that period, the chance of any unfortunate results accruing is so slight that marriage is quite permissible. He insists, however, upon the full two years' interval, even in cases in which secondary symptoms have been slight, or have been entirely suppressed under the influence of early mercurial treatment; and he always advises the continuance of the treatment during the whole two years when marriage is in question. Mr. Hutchinson is strongly opposed to the use of iodide of potassium in secondary syphilis; the most marked cases of persistent syphilitic taint in his experience have been those in which this substance has been trusted as a specific.—(*Archives of Surgery*, April, 1895.)

The Treatment of Chronic Heart Disease by the Methods of Dr. Schott of Nauheim.—Dr. J. F. H. Broadbent has published his experience of this treatment as observed personally by himself at Nauheim. The methods are twofold. There is, in the first place, the use of baths containing various mineral substances and free carbonic acid in solution; and, in the second place, the employment of gymnastic exercises in the shape of movements of the muscles of the limbs and trunk, made slowly and systematically against slight resistance offered by a trained attendant. The effects both of baths and exercises are seen in a slowed condition of the pulse, with increase of its volume and force; and, in cases of dilated heart, diminution also of the area of cardiac dulness, with relief to the liver if this is congested. Dr. Schott's view is that these results are brought about through reflex influences, the stimulus being in the one case the gaseous and mineral constituents of the bath, and in the other the muscular movements, the result being a slower but more forcible cardiac contraction. With this position Dr. Broadbent does not altogether agree. He is more disposed to think that the dilatation of the cutaneous vessels caused by the bath, and of those of the muscles which attends the slow movements of the limbs, promotes the efficiency of the contraction of the left ventricle, both by enabling it to contract more fully on its contents, and also by lessening peripheral resistance. The dilatation of the arterioles and capillaries, and the more forcible ventricular contractions, will also lessen the venous stasis which gives rise to hepatic and other congestions. The effects above described, as produced by each bath or set of exercises, are of course temporary; but if the stimulus is repeated with sufficient frequency there will, according to Dr. Schott, be permanent improvement, the heart in valvular disease becoming sufficiently hypertrophied to cope with the abnormal circulatory difficulty; whilst in dilatation due to debility, &c., the atonic condition of the cardiac muscle is replaced by a more healthy condition of the tissue. Sir Wm. Broadbent, in a note attached to his son's paper, expresses the opinion that the baths and exercises constitute an additional resource in the treatment of failing compensation, but that experience is still needed to decide how far and in what cases they may prove useful; their limitations and dangers have yet to be pointed out.—(*Practitioner*, May, 1895.)

In the same journal is a note drawing attention to the fact that as long ago as 1880 Glax, summing up an extensive experience of cardiac disease, expressed the opinion that one of the most powerful measures in the treatment of heart disease is the restriction of the amount of fluid taken; this alone, he says, is often sufficient to bring about compensation.

Mercury in Albuminuria.—Sir Richard Quain, in an address to the North-West London Clinical Society, expresses the opinion that the practice of abstaining from the use of mercury in albuminuria is not well founded. He believes that, in combination with squill and digitalis, mercury is invaluable in certain cases of albuminous urine. It acts, he thinks, by relieving congestion in the abdominal organs, including the kidneys.—(*Clinical Journal*, 20th November, 1895).

A Case of Phenacetin Idiosyncrasy.—The patient, who was the subject of mitral regurgitation, after taking the third dose of eight grains of phenacetin at intervals of three hours, was seized with marked evidences of collapse, the temperature being subnormal and the pulse feeble. There was profuse perspiration of the forehead, but the rest of the skin was dry. The face is described as having a mahogany colour, and prominent dark-coloured wheals appeared on the hands and neck. There were also slight convulsive seizures. Under the use of heat to the surface, and the administration of diffusible stimulants, the patient made a good recovery.—(*British Medical Journal*, 18th January, 1896).

Leucoplakia.—As a local application, Rosenberg recommends iodide of potassium. He employs a 10 per cent solution, painting it over the affected points. With this treatment he has seen leucoplakia disappear in a few days, after lasting for seven years, and resisting all the usual methods.—(*Practitioner*, March, 1895.)

DISEASES OF THE EAR.

By Dr. WALKER DOWNIE.

On Erosive Inflammations of the External Ear.—Dr. Jonathan Hutchinson here gives particulars of three interesting cases of erosive inflammations of the external ear. First, a lady about 40, in whom the left ear has been very extensively eroded. The skin of the whole of the helix has been destroyed, and the cartilage only is left, covered by thin scar. The disease was in his opinion undoubtedly lupus vulgaris, and it had extended in a characteristic fashion on to the adjacent cheek and neck. It differed from chilblains in that only one ear was affected, a feature in which it fits well with the commonly observed facts as to the non-symmetry of common lupus; and there had been no periods of complete healing as are usually observed in erosions due to chilblains or to summer eruptions.

This case of lupus vulgaris attacking the ear he records in order to assert that the conditions were exactly repeated in his second case, except that in the latter the lesions were exactly symmetrical.

In the second case the tendency to healing was greater, and there was nothing of lupus nature on the adjacent parts. The patient was a gentleman, aged 27, who had never been specially exposed to cold, nor addicted to early rising. His ears were first affected when about 17, and appeared then to be worse in sunny weather than in winter. Latterly, however, they had been, like ordinary chilblains, worse in cold weather, although he had not suffered specially from chilblains on the hands or feet. When examined by Mr. Hutchinson the lobules had been entirely lost, and the lower two-thirds of the helix were in a condition of vascular scar, while the upper part of the helix, which usually first suffers in chilblains, was sound. A healthy white scar extended from the back of the ear on to the skin over the mastoid process, and in front the scar extended into the concha.

The patient had spent the early spring in Madeira to recover from pleurisy and congestion of the lung; and although he had no pronounced indication of phthisis, he had lost a stone and a half during the past three months, and over both apices the breathing was harsh. There were ulcers on his tongue and palate, which looked like syphilis, although all history of primary lesion was absent. Although these ulcers so closely resembled ulcers often seen in syphilis, Mr. Hutchinson's diagnosis was that they were tubercular. However, he says that if we regard the disease as lupus, it is to be noted that the healing had been spontaneous, for he had never had any special treatment; the lesions were most accurately symmetrical, and the patient had no lupus patches on other parts of the body.

The third case connecting those sore ears with scrofula was in the person of a man, aged 27, who sought advice on account of his dusky ears. Exposure to slight cold resulted in his ears becoming livid or almost black, especially during the previous twelve months. There was no appearance of liability to Raynaud's phenomena in any other part. The ears were not eroded, but simply livid, with the exception of the border of the right helix, on which were some small pustules. On the right side of the neck there were a number of swollen glands which were commencing to suppurate. He had suffered severely from chilblains when a boy, but not so latterly. He had contracted syphilis six years ago; had subsequently taken much iodide of potassium; and now, though he had the appearance of good health, his nervous system and his circulation were found to be seriously at fault.—(*Archives of Surgery*, October, 1895.)

The Importance of Aural Anatomy in Routine Clinical Work. R. A. Randall, M.D., Philadelphia.—In this paper the author emphasises the necessity of the general practitioner, who would treat the routine aural cases intelligently and successfully, having the topography of the ear and its surroundings clear in his mind and at his finger ends. He should know the variations in the configuration of the external auditory canal, the size, depth, and inclination of the drum-head, and the structures which lie beyond it, within easy reach of damage by his manipulations. He considers that text-books on anatomy, surgery, and even otology are responsible for much of the ignorance displayed by many graduates, by adopting without question current misstatements of facts. He holds that hard and fast statements are made as to the most variable points, while vague and inadequate data are given regarding matters calling for explicit description. He instances the inadequate nature of aural treatises on the external meatus in its variations and development from the infant to the adult form, mentioning many of the errors which are adopted by one author from another. Very few surgeons fully appreciate how much further from the surface the anterior part of the membrane is than the upper posterior part. In order to educate sight and touch in learning the anatomy of the external ear, he advocates the use of the cotton-holder in cleansing the auditory meatus. The relations of the parts are thus readily learned, and a delicate confident touch is obtained which is necessary to the successful performance of intricate operative procedures.

Directions are given for puncturing the tympanic membrane, and how to avoid injuring the structures beyond, especially the stapes, the chorda tympani and facial nerves, the mucous membrane of the promontory below, and the jugular veins on the floor. In referring to the Eustachian tube, he holds that its walls normally lie in contact during rest, and that the dilating action of the so-called palate muscles is necessary to render it patulous. In support of this statement he refers to Politzer's experiment—*i.e.*, if the sounding tuning-fork is held before the nose it will be but faintly heard until the act of swallowing is performed; when the action of the tubal muscles is called into play, the sound is momentarily much more audible from opening of the tubes. Other experiments are also referred to, and further demonstrate the normal closed state of the tubes.—(*The Journal of the American Medical Association*, 23rd November, 1895.)

Morbus Ménièrei. By Prof. Gruber.—This is a short and interesting lecture delivered in the Otological Clinic of Vienna University, in which are discussed Ménière's disease pure and simple, and the Ménière phenomena which may be associated with other morbid conditions of the ear. In every case with such symptoms it is necessary to determine exactly whether the morbid change is due to an affection of the labyrinth alone, or whether the labyrinthine affection is secondary to disease of the middle or external ear.

"Morbus Ménièrei" and "Ménière's phenomena" should not be confused, the former being a primary labyrinthal morbid process, having tinnitus and vertigo, with fainting and vomiting, the subjective hyper-sensory hearing or difficulty of hearing, or even deafness, and which may be due to a variety of lesions in the internal ear; while Ménière's phenomena may be present, associated with varying affections of the middle ear, and in some cases with morbid change in the external meatus readily detected by careful examination. —(*Medical Press and Circular*, 8th January, 1896.)

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ORIGINAL ARTICLES.

ACCOUNT OF A FEW CASES OF BERI-BERI TREATED IN THE GLASGOW WESTERN INFIRMARY.

By JAMES FINLAYSON M.D.,
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Some cases of beri-beri, six in number, admitted to my ward in the Western Infirmary, during the last few years, seem worthy of notice on account of the rarity of this disease in Glasgow, and also because of the great interest attaching in recent times to all forms of peripheral neuritis. Of course, but little could be expected in watching a few stray cases, away from the centres of this disease, by those with practically no experience of a disorder common enough elsewhere; but these very circumstances give a certain value to a few isolated observations. Dr. George Marshall, who sees cases of illness at this port, sent the first cases to my wards, and directed the other foreign seamen also to me, as I had seen the first. He assisted in various ways in the investigation of the cases. Considerable difficulties occurred in studying the cases owing to their language being unknown, and interpreters were not always at hand when required; but in one case the nurse in charge could make out partially the Chinese spoken by the patient, although the dialect was different from the one she knew.

Of the six cases, one was a Scottish seaman who had become ill, some months before admission, while out with the vessel at Java—one of the regions affected with beri-beri.

Two of the six patients were natives of India, and both came to Glasgow at the same time and on the same steamer, one of them having been for a time at Singapore before he joined the ship on this voyage. This also is a favourite place for beri-beri. The other Hindoo had been for eighteen months in the same steamer (trading to Japan, but calling at Singapore). The former became ill while at Havre on the way home. The latter not till Glasgow was reached. On this steamer, only one previous case, and that a slight or doubtful one, had occurred during the preceding five years. Both patients were firemen, and they slept in adjoining berths. They had been on full duty till the time stated. This seems to indicate the long period which may elapse from the time of leaving an infected district before symptoms supervene in such a form at least as to incapacitate a man for work.

The other three patients were Chinese firemen. The first Chinaman seen became affected on the voyage from Singapore to New York, and became so weak and helpless that he had to be carried up regularly on to the deck. He had been ill five weeks before admission. The second Chinaman was also a fireman, and he had only been ill a few days before the arrival of his steamer from the East, but this was a month before his admission to the Infirmary here. The third Chinaman, also a fireman, became ill six weeks before arriving in Glasgow on his voyage from Hong Kong *viâ* New York.

In some of the cases the food supplied was inspected by us, but nothing was made of this. The rice and peas seemed excellent. The sun-dried fish used by the Hindoos, and the sample of cabbage used by one of the Chinamen (Ah Ching), seemed very unattractive, especially the latter, which appeared pretty much decomposed; but apparently the food had nothing to do with the occurrence of this disease, as many others were using the same articles of diet without any harm. In the case of this Chinaman (Ah Ching), however, but apparently only in his case out of the six, the disease had proved fatal on the same voyage to one of the shipmates, a fellow countryman, who died at sea.

This fact, by its exceptional character, throws some light on the disease as we found it in Glasgow. Any severe forms of the disease, with rapidly advancing symptoms, were likely to terminate fatally before the end of long voyages from the East, which were prolonged sometimes by coming round by way of New York or France. The disease in the whole of our six cases was essentially of the paralytic type, although some of the patients presented more or less œdema of the feet and gastric pains at or immediately before admission.

The Scotch patient and the second Chinaman were not so badly affected as to prevent their walking on admission; but even the former, on going about for half an hour, felt so feeble on his legs that he fell at times. The others were very helpless on their legs, some quite unable to stand even when supported, partly owing to pain, partly to loss of power.

At times, pains in the limbs were severe. In all the cases there were pains produced on pressing the muscles of the calf, and tenderness on pressure over the nerve trunks was sometimes very pronounced.

A marked and usual feature in the cases was anæsthesia or analgesia, sometimes over limited areas in the legs, at other times very extensive and extreme. In one of the Chinamen (Ah Ching) the resemblance of the hands and feet to the drooping, seen in lead paralysis cases, was so striking as inevitably to give rise to comment.

In all the cases the knee-jerk was absent, but in one of the Hindoos (Amenoola) a faint jerk could be obtained in the right side shortly before his dismissal. On his reporting himself at the Infirmary 2¼ years later, the jerk was still absent on the left side, but present on the other, as before.

In the last case (Ah Pow), although the patient had recovered so as to be able to walk up and down stairs alone, and although the improvement was further indicated by the electrical "reaction of degeneration" giving place to the normal serial reactions, the knee-jerk on both sides remained quite absent when he left. The nervous symptoms thus coincided with those found in peripheral neuritis. The electrical reactions varied with the severity of the cases. In some, apparently those already recovering or who did actually recover soon, faradic contractility was preserved. In the case of the Hindoos, whose legs had been hardened by constant exposure to the furnaces, an apparent absence of response was ascertained to be due to the resistance of the skin. When this was overcome by soaking it with salt water, the faradic response was obtained in them. In other cases, no response to this current could be obtained. The response to the galvanic current, both as regards its slow character and the serial reactions, indicated the "reaction of degeneration." In the case of (Ah Pow) this passed off with his improvement, the serial reaction becoming normal. His case is given in detail, at the end of this paper, as a specimen of the disease, and as presenting this interesting feature.

As regards *general* symptoms, it may be said there was practically an absence of fever. One of the Hindoos showed on the day of admission a temperature of 100° F., and one of the Chinamen (Ah Ching) showed on three occasions a temperature of 100° to 101·2° F.

In view of the anæmic theory of the disease the blood was tested in four of the cases as to its richness in corpuscles and in hæmoglobin; but although some deficiency was detected, especially in the latter, there was no great falling off in either respect.

Two of the patients had systolic cardiac murmurs, apparently of anæmic origin, disappearing before dismissal.

Œdema of the feet and legs had been present in nearly all the cases at one time; in some, shortly before admission; in three of them it was still present on admission to the wards. A suspicion of peritoneal effusion was entertained in one case, but it was not certain. A sense of oppression or pain in the region of the stomach, with, in some cases, a feeling of tightness round the waist, was noted in four of the cases.

No *filariæ* were detected in those cases examined, when tried late at night.

The treatment pursued was by nutritious feeding. Some difficulty was experienced in the case of the Hindoos, who were Mahommedans, owing to religious scruples. During the stage of pain, rest in bed was prescribed; and in the way of medicine iodide of potassium, arsenic, and other tonics were given. Electricity was also employed, the form varying with the responses obtained in the special cases. Exercises, graduated according to the power of the patients, were prescribed when the pains subsided; and, in the case last treated, massage was carried out by one of the nurses who had learned to practise it. As stated in the detailed report, this seemed to be followed by a marked improvement; the patient, no doubt, had been improving before, but it seemed to strengthen the muscles and enable exercises to be carried out better.

In the matter of recovery the element of time is, no doubt, of great importance, and also the removal of the patients from infected districts; both of these conditions were fulfilled in the cases admitted to the hospital here.

Case of Ah Pow.

Ah Pow, æt. 40, Chinaman, fireman on board a steamer, was admitted on 6th September, 1895, with loss of power in his legs of two months' duration.

His illness began on the voyage from Hong Kong to New York, the first symptoms being pain in the stomach, with vomiting and a general feeling of malaise. These symptoms lasted two or three weeks, and were immediately followed by great swelling of the feet and legs, with inability to walk, the swelling also lasting three weeks.

On admission his face wore a somewhat pinched expression. He was unable even to stand alone. His limbs were very thin; his muscles felt soft and flabby, and in the legs seemed distinctly wasted. There was no evidence of œdema.

Examination of the lungs, heart, liver, and urine presented nothing remarkable. Only a few sonorous râles were heard in the lungs.

Nervous System.—There seemed to be no disturbance of tactile sensation. There was considerable tenderness of the calves of the legs, and the following nerves were painful on pressure—the external popliteal, the musculo-cutaneous, and the plantar on both sides. There was no tenderness in the thighs or in the arms.

The knee-jerks were completely absent. The plantar, cremasteric, umbilical, and epigastric reflexes were all present, the cremasteric being well marked.

The grasp of the hands was fairly good, and there was no complaint of loss of power in them. The tongue was slightly tremulous on protrusion. There was slight nystagmus (probably unconnected with the present disease). The pupils responded well to the stimulus of light and with accommodation.

On examination by the faradic current, on 16th September, no response was got in either the nerves or the muscles below the knees; but there was a response to this current in the extensor and adductor regions of the thighs. For this response, however, the strongest obtainable current from the primary coil was needed. On examination by the galvanic current, on 6th October, a distinct "reaction of degeneration" was got in the muscles of the legs and thighs. The A.C.C. was got with a weaker current than that needed for the C.C.C. The current was too painful to allow of the C.O.C. being got.

For about two weeks in the middle of October the patient seemed to suffer very severe pain in the calves of the legs, especially at night. He would then toss about in bed very much, or sit up rubbing his legs and making grimaces. If, in the midst of this, the nurse came up to his bed and began to rub his legs with a soothing liniment which had been prescribed for the purpose, he would very soon fall asleep, just like a child. He also for a short time complained of colicy pains.

By 14th November he had improved considerably. He was complaining of no pain, and there was only slight tenderness of the calves and of the plantar nerves. He could walk on the level fairly well, though his gait was somewhat ataxic, and he could climb a stair with one hand on the rail, though he had extreme difficulty in raising himself on tiptoe. This improvement was further manifested in that there was now obtained a response to faradic stimulation of both the nerves and the muscles of the legs. The contractions to galvanic stimulation were also found to be normal as regards their series and their character, with the exception of those obtained from the anterior crural nerve.

When his blood was examined on 20th November there was evidently no deficiency of corpuscles, though the hæmoglobin was only 70 per cent. Though examined at midnight, the filaria sanguinis was not found.

He was dismissed on 9th December to go home to China, free from pain, still unable to stand on tiptoe, but able to go up and down stairs without holding on to the rail. His knee-jerks were absent to the last.

Treatment was at first exclusively by rest, with certain medicines, chiefly iodide of potassium and arsenic. He had the continuous current pretty regularly applied from 20th September till the end of October. Massage was then begun by the nurse, and continued daily. The most marked improvement occurred during the period when he was undergoing massage; and, as already indicated, exercises, first in standing and walking, and then in climbing stairs, were carried out in a graduated manner.

NOTE OF CASES.

1. William Blake, Scottish seaman, æt. 40, admitted 14th June, 1889; dismissed much improved 6th July, 1889.
2. Farcanoola, Hindoo, fireman, æt. 25, admitted 25th July, 1889; dismissed well 21st October, 1889. (Reported by shipmate two years later to be keeping well.)
3. Amenoola, Hindoo, fireman, æt. 35, admitted 25th July, 1889; dismissed well 14th August, 1889. (Reported himself at Infirmary 19th October, 1891, and found well.)

4. Ah Ching, Chinaman, fireman, æt. 25, admitted 3rd November, 1891; dismissed well 23rd March, 1892.

5. Mong Vong, Chinaman, fireman, æt. 30, admitted 27th April, 1894; dismissed 5th May, as there was a chance of getting home, and as he was not very ill.

6. Ah Pow, Chinaman, fireman, æt. 40, admitted 6th September, 1895; dismissed well 9th December, 1895. (Case reported in full.)

"ANCHYLOSTOMIASIS."

By ARTHUR D. HUGHES, M.D.

An epidemic disease, the most evident symptom of which is a pronounced and rapidly increasing anæmia, has been frequently met with in the tropical countries of both hemispheres. Dubini, Diesing, and other helminthologists have given the name "Anchylostomum duodenale" to the species of human nematode which appears to be the cause of the disease, while Leuckart prefers to name it "Dochmius duodenalis," and Siebold, emphasising the fact that the nematode belongs to the genus of strongyloid parasites, calls it "Strongylus quadridentatus," which is undoubtedly the best nomenclature from the zoological point of view. The helminth gives rise to a special form of tropical anæmia, is met with in different parts of the globe, and in each country the disease obtains a local name. In Brazil it is designated "cançaço"; in Japan "kakke"; in Assam "kála-azár." Owing to the fact that the disease frequently presents almost identical symptoms to another, prevalent in a severe epidemic form in the Madras province in the early decades of the present century, and known under the name of "beri-beri"—and very strongly treated of in the pamphlet of Dr. Malcolmson[1]—considerable confusion has been caused by some observers endeavouring to identify the disease which had come under their personal notice with the "beri-beri" of Madras. So much is this the case that it has become quite the custom of the English-speaking population of Assam and other places to give the designation of "beri-beri" to almost any form of epidemic disease prevalent in the neighbourhood. The disease described by Malcolmson is undoubtedly the same as that observed by Pekelharing[2] in the Dutch Indies, and is characterised by a distinctly specific affection of the nervous system, whilst the disease hitherto known by the same name in Ceylon and Assam possesses as its most constant and important clinical feature progressive pernicious anæmia. In the first disease the prominent feature is *paresis*, and anæmia is a secondary complication; in the latter, anæmia is the leading symptom, and no true paralysis is ever met with. Seeing the confusion that the misuse of the term "beri-beri" has resulted in, it seems much more preferable to adopt the suggestion of Dr. G. M. Giles, who has done so much to differentiate the mis-termed "beri-beris," and drop the name altogether, substituting the term "Anchylostomiasis," or parasitic anæmia, for the "beri-beri" of Assam and Ceylon, and "Specific peripheral neuritis" for the "beri-beri" of Achin, Dutch Indies, and Madras.

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[1] *A Practical Essay on the History and Treatment of* "*Beri-beri*," by Surgeon J. G. Malcolmson (Madras, 1835).

[2] *Recherches sur la nature et la cause du* "*beri-bers*" (Utrecht, 1888).

The occurrence of anchylostomes in hypoæmics has been fully verified by the researches of Griesinger, Pruner, and Bilharz in Egypt, and the disorder known by the name of "Egyptian chlorosis" has been described by Küchenmeister, Davaine, and Leuckhart. When Wucherer announced the discovery of a disease in Brazil, which he considered to be identical with "Egyptian chlorosis," his views were at first strongly opposed, but were afterwards abundantly verified by the investigations of Dr. Jobini. Anchylostomes were found in the bodies of hypoæmics in Comorens, Cayenne, and in other widely-separated localities. The disease, which spread with such fatal effect among the miners engaged in the St. Gothard Tunnel excavations, and to which was given the name of "Tunnel Trichinosis," was found by Perroncito to be the same disease as that observed in Brazil by Wucherer. It thus appears that Anchylostomiasis is not by any means a disease confined to any one country, but has been met with and described, more or less correctly, under other names, in Europe, America, Africa, and Asia.

In the following pages it will be the privilege of the writer to describe, in a very humble manner, the ravages in Assam of an epidemic disease, known to natives as "kála-azár," by Europeans, confounded with "beri-beri," but which is really true Anchylostomiasis. At the outset the writer would desire to express his great obligations to the various medical officers in charge of the affected districts in Assam; to many native hospital assistants in charge of Government dispensaries; to the sanitary reports of the Sanitary Commissioner of Assam; but, above all, to Dr. G. M. Giles, who was specially commissioned by the Government of India to inquire into the nature of the prevailing epidemic. The excellent report of Dr. Giles has been freely laid under contribution in the preparation of this paper, and to that report the reader who desires fuller information is directed.

During the last ten years an epidemic disease has ravaged the northern districts of the province of Assam. In many cases whole villages have been nearly depopulated, and such panic has been caused amongst the survivors, that they have fled and left their homes entirely abandoned. The disease is known to the natives by the name of "kála-azár."

In the year 1882 the Sanitary Commissioner of Assam drew attention in his annual report to the abnormally large death-rate in the Garó and Goalpara districts, and pointed out that it was largely due to "an epidemic disease raging in those parts." During the next three years it spread widely through the Goalpara district, affecting first those portions near the Garó Hills, and gradually spreading till almost the whole district became infected. In 1884 the disease became so serious a matter, that the Government decided upon taking special measures of affording medical relief, and established dispensaries at convenient centres, and at the same time employed a number of medical native assistants to travel about the country and treat the sick in their own homes. But little success followed these measures, it being found very difficult to induce the people to submit to European treatment. They were impatient for an *immediate* cure, and if they could not be cured by the first dose of medicine, got disgusted, and refused to give Western methods of medicine a further trial. The disease being a chronic one, could not be expected to yield so immediately to any course of treatment. The treatment, moreover, was entirely devoted to the conquest of malaria, and hence, from the point of view of the disease developed in the present paper, it was by no means surprising that no good result was met with. The spread of "kála-azár" was in no way checked by the relief operations.

In 1886 Kamrup, the adjacent district, was attacked, and year after year we find in the annual reports of the district surgeons that the disease is getting a stronger and wider hold on the villages and towns under their charge. The march of the disease is slow, for we find that not until 1888 did it make its appearance in Chaygaon, a place only 35 miles west of Gauhati, thus having taken four years to travel the short distance of 36 miles. In 1890 it reached Gauhati—35 miles in two years; but, owing to the interchange of commerce between the two places, the facilities for travel were more in favour of a quick advance. It can now be found well to the eastward of Gauhati, and has invaded the Nowgong district. On the northern bank of the Brahmaputra River it has spread to Mangaldai and Barpeta.

When once the disease has made its appearance in a place, it never leaves it, the weekly returns of the prevalence of epidemic disease showing it to be present to-day in every part of the country where it has been previously reported. Its progress is remarkable. It does not appear suddenly, affecting a large area like influenza and cholera; nor does it spread from person to person rapidly, like the specific fevers do, but it creeps slowly and methodically from village to village, so slowly that it took seven years to travel from **Garó to Gauhati** —a distance of less than 100 miles. It cannot, therefore, be a disease of malarial origin, though Assam is a very malarious province. It has been suggested by someone that "Kála-azár" may be due to waves of "periodic epidemic intensity of malaria," but such can hardly be the case, as one never heard of any such periods of intensity before the appearance of this disease. Moreover, when once "kála-azár" has made its appearance the intensity remains intense, but ceases to be periodic. It is also quite common to find villages quite unaffected by the disease, in the midst of a number of other villages which have been nearly decimated by it, less than a mile away. If these outbreaks be due to "climatic influence," the outbreak ought to attack a large number of people simultaneously, or nearly so, whereas we find it attacks but few of the inhabitants of a village at first, and then spreads with exceptional slowness. Again, we find that there is no recorded instance of a European becoming infected, and we know that they enjoy no such immunity from malarial cachexia.

The distribution of the disease is extremely capricious, but once having gained entrance into a community, it rapidly increases in virulence, and the mortality is enormously increased. The system of registration of births and deaths is naturally a difficult matter in India, and only in a few places can it be carried out in anything like an efficient manner. The accompanying table, prepared in 1884 by the civil surgeon of Dhubri, gives the mortality in a few affected villages.

The table clearly indicates that the villages remarkable for so pestilential a mortality are of small size, and the worst instances occur in very small villages. This can easily be explained on the assumption that the mortality-producing disease is communicable from person to person. Take, for instance, the village of Bhardoki, where one-half of the entire population of eighty-four souls died within the year. In the Indian sense of the word "family" the village would consist of only two or three families, and the inhabitants would all be in close and constant association. High mortality would be inevitable.

Name of Village.	Population.	Deaths.	Mortality per 1,000.
Champeani, ...	219	50	228·3
Reperaghor, ...	61	17	278·6
Shoran Dubi, ...	179	51	284·9
Jori, ...	228	46	201·7
Daman, ...	217	70	322·5
Mamarpara, ...	120	28	233·0
Khal Moharer, ...	117	26	222·0
Bhardoki, ...	84	42	500·0
Dakaidol, ...	263	53	201·0
Average, . .	165·3	38·9	257

Taking the villages in the Goalpara district, we find that the average population of those having a mortality of over 200 per thousand is 148; that of villages with mortalities between 150 and 200 per thousand is 215; while the average population of the whole number of villages is 143. It seems impossible to explain this fact, save on the assumption of communicability.

The number of small villages showing exceptionally high rates of mortality is too large to admit of the explanation of its being due to the fallacy of drawing statistical ratios from insufficient data.

The deductions derivable from such statistics as we have all point to the conclusion that, whatever else it may be, "kála-azár" is a disease which affects intensely scattered local centres. Its distribution points it out as a communicable disease.

What, then, is it? Let us consider the clinical symptoms as given in the notes of a number of cases described by different observers, afterwards commenting upon what appears most remarkable in each case.

CASE I.—A labourer, age about 30, living in Garó. Father died when he was a child; mother, a month ago. Is married, and has two children, said to be healthy. His village consists of about sixteen houses, all inhabited. A large number of people had died of "kála-azár" in neighbouring villages, but his was not attacked till a year ago. The disease was believed to have been brought from a village three miles distant. A man was first attacked, who, though very ill, still lives. Then the man's children fell ill. Others followed, and about a month ago patient himself began to suffer from diarrhœa and feverish symptoms. Then his spleen became palpably enlarged, and he began to lose flesh. Present condition is weak, thin, and anæmic; has slight anasarca; appetite bad; bowels loose. Spleen enlarged to 9 inches below ribs. Pain in abdomen.

The patient remained in the hospital for three months, and in spite of continuous *anti-malarial* treatment, grew steadily worse; had repeated bowel attacks, and died from an attack of pneumonia. During his stay in hospital his temperature, with one or two very slight exceptions, remained subnormal, often not reaching the normal for weeks together. During the attack of pneumonia which proved fatal, the temperature ran up once to 103°, and remained above normal for some days, but before his death it had come down to 95·8°.

Now, in this case, anti-malarial treatment had a fair trial. Quinine in 16 grain doses, arsenic, iron, iodine, were all tried and persevered in, but the patient grew worse instead of better. The only symptom of malarial poisoning about him was the enlarged spleen, but nearly every second native one meets in India has a more or less enlarged spleen, and nevertheless enjoys fair health.

Post-mortem examination (twelve hours after death).—Body emaciated, not darker than usual. Feet œdematous. Section of tissues anæmic.

The left pleural cavity contained fluid of a slightly turbid character; pleura rough and congested. Posterior part of left lung in a state of grey hepatization. No fluid in right pleural cavity. The heart is structurally healthy; contains clots. The abdomen contains a moderate amount of pale serum. The liver is of normal size, not congested, of firm consistence. The spleen is enlarged to three times its normal size, lobulated; section firm; capsule thick and corrugated. No infarcts. Kidneys, right congested; medullary portion slightly granular; left of similar appearance. Suprarenal capsules appear normal. The stomach contains thick white mucus adhering to the mucous membrane, the surface of which is brown and corrugated, but not ulcerated. The mesenteric glands are of normal size. The duodenum and about 2 feet of the jejunum are of a slaty colour, which is gradually less marked in the lower parts. Further down, the bowels were evidently thinned with patches of dotted congestion, sometimes extending through Peyer's patches in streaks, but not over the whole surface. Other Peyer's patches were quite healthy.

CASE II.—A boy coolie from Garó, age 15, gives the usual history of having felt ill and "feverish" for some months. He has an enlarged spleen, fever, is gradually getting thinner, and feels too weak to work. Present condition—anæmic and thin, but can move about; tongue pale; appetite fair; pulse quick; bowels regular; chest healthy; spleen palpably enlarged. The subsequent history of the case is largely similar to the preceding one. Anti-malarial treatment was only productive of diminution in the size of the spleen. The boy got worse, and died after being in hospital for three months. A violent attack of diarrhœa set in a few days before his decease. There was no pyrexia during his stay in hospital, except once, when the temperature ran up for a few hours to 101°.

Post-mortem examination revealed enteritis as the cause of death. In the duodenum were noticed the same peculiar appearances as in case No. I. There were a large number of deposits of pigment of an inky hue scattered over the membrane of the duodenum, varying in size from a mustard seed to a pea, many of them quite firm to the touch.

CASE III.—A girl, aged 12, daughter of a small landholder. She was driven away from her home because she had "kála-azár." Her parents had both died from it. In a half-starved condition she was brought into hospital. Condition on admission—body thin; feet and face œdematous; anæmia; bowels loose; spleen very large. At first the patient rallied a little, but suffered almost continuously from diarrhœa and abdominal pain. Her temperature was not of a malarial type, though for some days it remained at 101°. It was probably due to a severe attack of enteritis. Lingering for nine months, she eventually died during a severe attack of diarrhœa.

Post-mortem.—Body emaciated; section of tissue anæmic; serum in pericardium and pleura, but thoracic organs otherwise healthy; liver large and congested; spleen very much enlarged. Intestines—duodenum thickened and large; jejunum has a darkened appearance, caused by a very fine dotted pigmented deposit; not ulcerated; arborescent patches of congestion in the ileum; Peyer's patches healthy.

Remarks on the above Three Cases.—These are fairly representative of a series of twenty-five cases upon which *post-mortem* examinations were made. In each case, the physician who made the *post-mortem* examination paid special attention to the Peyer's patches, evidently having in his mind the idea that the disease was in some way similar to, or connected with, typhoid fever. But, instead of the characteristic lesions of that disease being apparent, peculiar abnormal changes were found in the *upper* part of the bowel, which were quite inexplicable owing to the non-discovery of the cause of such changes. In the first case we have a typical state of the duodenum and jejunum acted on by a colony of parasites. In case No. 2 the deposits of pigment of an inky hue, &c., can be nothing else than the bites of a parasite, and are really nothing else but minute extravasations of blood into the mucous and submucous tissues following such bites.

But why not parasites in situ? The washing of the bowel, preparatory to detailed examination of it, swept away the parasites and left only the changes produced by them. And again, the *post-mortem* examinations were made some hours after death had taken place, when the worms would have become detached from the membrane, and got enveloped in the glairy yellow mucus of the duodenum, so as to be quite invisible except to the closest scrutiny. Had examination been made immediately after death, the parasite must have been discovered, and cause and effect observed simultaneously.

It being evident from the preceding cases that the disease was largely, if not entirely, due to the ravages of some intestinal parasite, special attention was afterwards paid to the evacuations of the patients. The following cases show the result:—

CASE IV.—An Assamese, aged 32. On admission to hospital he complained of diarrhœa, abdominal pain, indigestion, and general weakness. He was emaciated and anæmic. Feet were œdematous. After the admission of a saline purgative, the patient was given three 30 grain doses of thymol, followed in a few hours by a second saline purge. In a short time he passed a stool containing 25 anchylostomes. Next morning a few ascarides, and at intervals during the day more anchylostomes were passed. Other cases were treated in the same manner; in some, a careful examination of the stools revealed the presence of anchylostomes, in others none were found. The following case is typical of many which were only seen when the disease was in a very advanced stage:—

CASE V.—A Hindoo, aged 30. On admission he was very emaciated. Height, 5 ft. 6 in.; weight, 90 lbs. Could scarcely stand. Too apathetic to give any account of past history. Legs œdematous; face puffy. Very anæmic. Skin dry and cold. Tongue furred and pale. Area of cardiac dulness increased, but difficult to define, being merged below in the dulness extending over the pulmonary area. He was constipated, but in no pain. A saline purgative relieved the bowels, and the stools contained large numbers of ova, and also some undigested food. Temperature normal. Died three days after coming into hospital.

Post-mortem (four hours after death).—Anæmic, emaciated, very œdematous. Chest: Small quantity of fluid in each pleura. Much fluid in pericardium. Lungs: Right, 1¼ lb.; left, 1½ lb. Both œdematous throughout, congested below, very pale above. Ante-mortem clots in larger branches of the pulmonary arteries. The right side of the heart was filled with a very large ante-mortem clot. Muscular substance thin and pale. Mitral valve and adjacent endocardium thickened. Left ventricle empty. The abdomen contained a quantity of ascitic fluid. Liver weighed 1 lb. 15½ oz.; pale. Gall-bladder was nearly full. Spleen weighed 5 oz.; of normal appearance and very firm. Kidneys pale, but healthy. Œsophagus pale, but normal. Stomach dilated, pale, with a few reddened patches; the walls were so thin as to be nearly transparent. The ascending colon contained soft fæcal matter, while the lower bowel was filled with a hard mass. No ova could be found in the mucus from the upper part of the bowel; they were extremely numerous in the soft fæcal matter in the colon, but were comparatively rare in the hardened matter lower down. Upwards of a thousand anchylostomes were found in the upper end of the small intestine. The first specimens were found immediately below the pylorus, adherent in great numbers to the whole of the duodenum and upper third of the jejunum. The greatest numbers were to be found in the commencement of the jejunum, where sixty-five were counted, adherent to a piece of bowel 8 inches in length. On this piece only ten more recent bites than adherent worms could be counted. About 3½ feet along the jejunum only thirty could be counted in a similar length, while at 5 feet only *unadherent* specimens could be found. No other entozoa were present.

Although it was impossible to make a very accurate clinical study of this disease, there was no doubt as to its enormous prevalence. The natives are very strongly prejudiced against European treatment, and it was only as a last resort, after all their "hakims" had failed, and their invocations to their gods had been unsuccessful, that they would come to hospital. Even then, if the first dose of medicine did not make them feel better, their faith disappeared, and often they were missing also. Frequent excursions into the villages of the jungle made it only too evident that the larger number of those affected by the epidemic were left to die without help of any kind being given them. It was easy to pick out of the group of natives that surrounded one on entering each village many who were evidently suffering from the disease in various degrees of intensity. But the diagnosis of the disease can only be made a matter of certainty by the actual discovery of the ova of the parasite in the fæces. The people could not be persuaded to bring specimens of their dejecta for examination, so specimens had to be collected at random. However, as natives never go far from the doors of their houses to relieve the calls of nature, there was no difficulty in the collection of specimens. The Assamese has a constitutional objection to exertion of any kind, and during the rainy season will often foul the ground under the very eaves of his hut, rather than go out in the rain.

Examination of the collected specimens proved that in badly affected villages three specimens out of four would contain the ova of the parasite. Further, the severity of the outbreak and the proportion of specimens showing ova were decidedly proportionate. In the soil about the houses, in the street puddles, and in the filthy, shallow pools, were repeatedly discovered the free, or "rhabditis" phase of the parasite, in all stages of growth. The worse a village was affected the more easy was it to find evidence of the prevalence of the parasite "Dochmius duodenalis."

The ova as met with in the fæces have a very characteristic appearance, and once seen cannot very well be mistaken for anything else. They measure on an average $\frac{1}{120}$ inch in length, by $\frac{1}{180}$ inch in breadth, and are usually 2 to 4 segmented. The yelk is of a greyish colour, and is separated from the shell by a comparatively wide zone of clear transparent fluid. The fluid and shell are quite white, and can thus be distinguished from the ova of "Ascaris lumbricoides," which are yellow, and from those of "Trichocephalus dispar," which are deep brown. The most advanced "Dochmius" ova which can be found in *fresh* fæces are in the morula stage of development.

Method of Infection.—How is the disease contracted? In what situations are infective embryos to be found in largest numbers? Not in wells, nor in pools, nor in any collection of water, but in the surface of the soil near the dwellings of patients who are suffering, or who have suffered from the disease. A broad circle of ground round the hut of every patient is little better than an extensive cultivation ground for the embryos.

The country has essentially a muddy climate, and only for a very short period in the dry season does the ground become actually hard and dry, and even then the morning fogs keep the surface more or less moist. Therefore, in entering and going out of his hut, and in his journeyings, the inhabitant of an infected village always carries about with him, on his mud splashed feet, a teeming colony of embryos. Once within a house it is obvious that there are many ways by which an embryo can gain access to the intestinal canal of his future host. For instance, food is always eaten whilst squatting on the ground, and the brass cooking utensils are cleaned by the mixing of a handful of mud taken from the floor of the house or yard. Thus it can be easily understood that the most sure method of favouring infection is conformity to the ordinary habits and customs of the average Assamese family.

Treatment.—The importance of an early diagnosis cannot be exaggerated. When it was first discovered that "kála-azár" was really anchylostomiasis, one hoped that the expulsion of the parasites would be sufficient to initiate a cure, and that the after treatment would simply be the building up of the patient's strength and supply of blood, in order to make up for what had been lost in the support of the parasites. But mere loss of nutritive matter is but a small factor in the causation of the fatal symptoms. The real damage is caused by the destruction of the digestive power. The constant gnawing of the parasites produces an erosion extending to the submucosa; repair takes place by cicatrisation, not by reproduction of secreting membrane. The total area of permanently injured membrane becomes considerable. It can, therefore, be easily understood what havoc is made with the digestive functions of the intestinal wall. Chronic gastritis is now followed by improper assimilation, and a condition of slow starvation supervenes, under which the loss of blood rapidly produces the pernicious anæmia so characteristic of the disease.

Treatment must, therefore, depend largely on the stage of the disease diagnosed. Roughly speaking, three distinctive stages in the course of the disease can be easily observed—viz., the Dyspeptic, the Anæmic, and the Dropsical, the first stage necessarily underlying the peculiar anæmia always patent to every observer.

All the dietetic and therapeutical weapons in our armoury are needed to combat the dyspepsia, and it is needless to point out that these can be only used in a very indifferent manner in the dispensaries and out of the way villages, where the disease is chiefly in evidence.

The fundamental rule in the treatment of disease holds good here. Remove the cause. The best agent we have for the expulsion of the parasites is, without doubt, that excellent anthelmintic, thymol. The drug must be given in large doses —*e.g.*, 20 grains, repeated three times in the twelve hours, and followed by a strong saline purgative after the last dose. Let the patient be kept without food for six hours previous to the first dose, but no preliminary purgative should be given.

The following is a handy method of dispensing thymol:—

A.—*Stock Solution.*

℞.—Thymol,	1 oz.
S.V. Rect.,	2 oz.

Dissolve the drug in the spirit, then add sufficient spirit to make up to 3 ozs. Each drachm of this solution will contain 20 grains of thymol.

B.—*Vehicle for Administration.*

℞.—Mucilage (acacia),	2 oz.
Glycerine,	½ dr.
Aqua,	2 drs. M.

At the time of administration add 1 dr. of the stock solution, 2 ozs. of the B mixture; shake well, and give to the patient. If the disease is attacked in one of its earliest stages, the dyspeptic troubles conquered, and the parasites expelled, good feeding up will, as a rule, finish the cure, unless malarial complications have also laid hold of the system.

Preventive Measures.—It has been shown that this dread disease is disseminated solely by the dejecta of afflicted patients. From this it follows that the only possible way of preventing its further spread is to put a stop to the fouling of inhabited sites; or, in other words, to adopt better measures of conservancy. If the following measures were strictly carried out, we should no longer have to note the steady, devastating march of anchylostomiasis in Assam:—

(1) The adoption of a simple system of conservancy in every village.

(2) The improvement of the water supply.

(3) The drainage and clearance of land around each village.

(4) If possible, migration from infected sites.

(5) If migration be impossible, the thorough disinfection of infected sites.

CASES OF PRIMARY CANCER OF THE KIDNEYS.[1]

BY DAVID NEWMAN, M.D.

A CONSIDERABLE number of cases have been recorded in which the co-existence of renal calculus and malignant disease has been noticed, and, as Dr. Dickinson has observed, "Pathology abounds with instances in which malignant and other growths have been started by accidental irritation. Cancer of the gall-bladder from biliary calculus is a parallel instance to the cases in which the pelvis is the seat of the villous or other growth sequent upon renal stone. Cases where the growth has been apparently in the substance of the organ are less easy to explain as a result of pelvic irritation; but that stone is more often a precursor of renal growth than can be explained by chance concurrence is certain."

Cases also have been recorded where the presence of the renal calculus has been coincident with the formation of sarcoma. For my own part, I believe that renal calculus may act as an exciting cause of malignant growth. Most pathologists recognise the fact that prolonged mechanical or chemical irritation frequently determines the seat of cancer. For example, cancer of the nasal septum in chrome workers, epithelioma of the lip arising from irritation of a tooth or of a tobacco pipe, cancer forming on an old cicatrix or on a chronic ulcer, are good illustrations of a general, if not invaluable rule, that it is prolonged and comparatively slight irritation, rather than intense and transitory excitement that predisposes to the development of cancer.

CASE I.—*Case of Renal Calculus with symptoms of ten years' duration, thereafter followed by symptoms pointing to malignant disease—calculus and epithelioma in left kidney.*

G. K., aged 56 years, was seen by me first on the 12th

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[1] Read at a meeting of the Glasgow Pathological and Clinical Society, 9th December, 1895.

December, 1884, and at that time he gave me a history of his illness, which clearly pointed to renal calculus in the left kidney. He said that about ten years ago he began to suffer from a dull, aching pain in the loin, accompanied by a sense of weight on the affected side when he was occupied at his work, that of a marine engineer. The pain was inconsistent, but, as a rule, it was aggravated by any sudden movements of the body, such as jumping, running, or sudden change of position in bed. The pain also varied with posture; when he lay upon his left side the pain was relieved; while if he stood or lay upon his right side it was increased. At this time the abnormal sensations were strictly limited to the left side. Within six months of the onset of the pain he commenced to suffer from frequent micturition, with pain in the bladder, and at the same time he noticed that the urine contained small quantities of blood. The bleeding was usually accompanied by pain, and, as a rule, it was increased by movements of the body; but sometimes several hours, or even days, might elapse between the exertion, to which it was referred, and the appearances of the blood in the urine. The blood was intimately mixed with the urine when passed, but if the urine was allowed to stand for a few hours, the blood corpuscles gradually separated as a deposit, and left the supernatant urine clear. At this time the urine was acid. The patient was a very intelligent man, and I could rely thoroughly upon his statements. He said that the doctors whom he had consulted had told him that he suffered from a stone in the kidney, and that they reported his urine to be free from albumen and pus.

In 1875 he consulted a native physician in Constantinople, from whom he received a powder, a dose of which he was ordered to take three times a day. After continuing these powders for three weeks, the hæmaturia and pain subsided, and for the two following years he considered himself perfectly cured, and he parted with the medicine he had received to a messmate who suffered in a similar way to himself; and he said the powders cured the messmate also. The exact ingredients of the powders I failed to discover.

The symptoms of renal calculus, after being in abeyance for three years, recurred in 1878, and after suffering more or less for six months, he being again in Constantinople, tried to hunt up the native physician whom he had previously consulted, but found that he had died in the interval.

When I saw him in 1884 he was suffering very severely from hæmaturia, together with sharp pain in the left renal region.

Considering the history above recorded, the diagnosis seemed to me to be between renal calculus and a stone in the bladder; the general course of the hæmaturia were strongly in favour of the hæmorrhages being renal, rather than vesical.

I ordered the patient to take rest for a week, and at the end of that time the pain was greatly relieved, and the hæmorrhage had almost entirely disappeared, but the urine on examination was found not only to contain blood, but also a considerable quantity of albumen and a few tube casts; these were present in acid urine, and could be readily separated by a centrifugal machine, but the tube casts did not deposit readily, and if the urine became alkaline they disappeared, probably by solution.

The question placed before me by the patient was whether his case was a suitable one for operation or not, and the patient came to me for the special purpose of being informed whether one or both kidneys were diseased, as he had been told by his doctor that the urine from each kidney could be examined separately.

After some trouble I succeeded in catheterising ureters, and while I found that all the blood came from the left kidney, the urine from the right kidney contained both albumen and tube casts. I consequently advised the patient against an operation, but prescribed what I considered suitable treatment for his relief.

At this time there was no evidence of tumour in the renal region, the patient was directed to take as much rest as possible, and instructions were given him as to his general health.

I did not see the patient again until June, 1885, when he presented himself to report progress. His general appearance was markedly improved, and he told me that, for the previous three months, he had not observed any blood in the urine, although he suffered from occasional pains in the left renal region. These pains were, however, less frequent and less severe than in the latter months of 1884; still no signs of swelling in the loin.

The next time I saw the patient was in November, 1886, when I observed a great change in his appearance. He was greatly emaciated, pale, and found a difficulty in walking even a short distance. He told me that he had almost no appetite, and frequently when he took food it was rejected. About four months previous to his last visit to me he had a very severe and prolonged attack of hæmaturia, and sometimes clots were formed which caused obstruction to the escape of the urine from the ureter or from the bladder. The pain was also more intense and more constant, and instead of being dull or paroxysmal, as in former times, it was now more lacerating, and the area of distribution of the pain was greater; instead of being limited to the hypogastrium or the lumbar region, it now extended down the left thigh, across the abdomen, and to the left shoulder.

The urine, in addition to tube casts, deposited large epithelial cells which were bound together more or less by blood clot.

Now for the first time a distinct swelling was observed in the left loin, the tumour could be distinctly felt through the lumbar muscles, and with one hand in the lumbar region and the other in front, a smooth solid swelling about twice the size of an ordinary kidney could be made out. The tumour was firmly fixed and painful on pressure, the percussion in the loin was dull, as far as four and a half inches from the spine, and this percussion was not varied by the position of the patient.

I considered the case now to be one of an entirely different nature from what it was when first presented to me. The whole aspect of the case had to my mind entirely changed, and from being one in which the symptoms were characteristic of renal calculus, indications now pointed in the direction of malignant disease. The patient was very anxious to have an operation performed, but, considering his emaciated condition and the diagnosis arrived at, I advised him to have nothing done. He died in February, 1887; and the left kidney was sent to me, when I found it contained six oxalate of lime calculi. The pelvis and calices were much dilated, and the upper half of the kidney was occupied by a carcinoma. (Dr. Newman showed diagrams of the kidney and microscopic sections).

The early history of this case pointed very clearly to the presence of calculus in the left kidney, while the later developments just as certainly indicated the presence of the malignant tumour. The case, therefore, was a most instructive one.

The symptoms of malignant tumour of the kidney are usually stated to be (1) pain in the lumbar region, at first limited to that part, but afterwards extending to considerable distance as a consequence of pressure; (2) the presence of a palpable swelling in the loin; (3) certain alterations in the character of the urine; (4) cachexia, (5) signs of the disease having extended beyond the kidney, and invaded other organs. In many cases which have been published, the first and only symptom which attracted the attention of the patient was pain in the loin. The pain is usually dull and aching, and may be paroxysmally increased, but, unlike the pain from renal calculus, it is not aggravated by movements of the body. The pain may be at first slightly vague and not constantly present, at other times entirely absent. As the tumour increases in bulk the suffering of the patient generally becomes intense, and instead of being dull in character, it becomes lacerating, and may rise either spontaneously or when provoked by pressure.

In the later stages of the disease the pain is not limited to the lumbar region and hypogastrium of the affected side, but extends in most instances to the hip and lower extremities, which may lead to the disease being mistaken during this stage for sciatica or rheumatism, or it may extend to the chest or shoulder of the affected side.

The presence of a palpable swelling in the loin is an almost constant sign of malignant disease of the kidney, but cases have been recorded where the patient has died from general dissemination of the disease, without the primary growth of the kidney being detected.

The second case which I bring before the Society to-night is an example of this. As a rule, however, the enlargement of the kidney can be distinctly felt in the lumbar region and in front.

The most important and most significant symptom of malignant disease, especially cancer of the kidney, is hæmaturia, but its value, as an indication of the nature of the malady from which the patient is suffering is greatly reduced by the circumstance of its being a symptom of many other renal affections which are also associated with swelling in the loin—for example, tubercular disease, hydatids, calculous pyonephrosis, pyonephritis, &c.

Hæmaturia from malignant disease is generally more profuse and less transient than when from calculus, and in some cases it is so copious as to cause marked anæmia. During the early stage of the disease profuse bleeding may occur, but, as a rule, it is only as the disease advances that the loss of blood attains to such an amount as to form a large deposit.

In calculous disease exercise frequently provokes bleeding, and therefore one finds the hæmorrhage more profuse during the day while the patient is moving about, whereas the hæmorrhage from tumour is, on the contrary, most likely to occur during the night while the patient is at rest in the recumbent posture.

In malignant disease, when the hæmorrhage has set in it is less transient than when due to other causes; it is generally spontaneous, and continues steadily becoming more profuse, although at intervals the bleeding is liable to aggravations.

At such times the bleeding may be so copious that the blood coagulates, and causes obstruction to the escape of urine from the ureter, bladder, or urethra, and consequently may resemble traumatic hæmaturia.

Besides the presence of blood, the urine may contain other organised constituents, such as tube casts, epithelium, and what has been called by some observers, "cancer cells." Attempts have been made to distinguish between loose epithelium cells detached from the pelvis, ureters, and bladder, and the so-called cancer cells but, as a matter of fact, in my experience I found loose epithelium cells of little or no sigificance. It is another matter, however, if we succeed in discovering a small portion of the tumour which has become detached, as the examination of such a fragment, microscopically, will at once clear up the diagnosis.

In malignant disease, especially in cancer of the kidney, certain constitutional effects are produced within a comparatively limited time. The most marked are anæmia, loss of flesh, and change in the colour of the skin, and these changes may supervene even although the patient is taking his food well and the loss of blood has been limited. In sarcoma of the kidney the so-called cachexia is not marked.

The indications of malignant disease of the kidney are not limited entirely either to the local symptoms just enumerated, or to the constitutional disturbance already referred to. The new growth may attain such a size as to cause by pressure upon the neighbouring parts, interference with the functions of the abdominal viscera, as indicated by vomiting, anorexia, icterus, constipation, &c. Or pressure may be exerted upon the veins within the abdomen, and so lead to œdema, ascites, or thrombosis of the intra-abdominal blood-vessels.

Again, over and above the symptoms just mentioned, secondary formations in distant organs may indicate their presence; or, on the other hand, the dissemination of the disease may be so rapid and wide-spread, that it is impossible to form a diagnosis. To such a case I now desire to call the attention of the members of this Society.

CASE II.—*Case of Primary Cancer of the Kidney, followed by wide-spread and rapid disseminations of secondary formations.*

This case I studied more from the pathological and histological standpoint. The specimen, which I showed to the Society, came into my possession while pathologist ten years ago. The patient was admitted into the Royal Infirmary under the care of Dr. Alex. Robertson, and complained principally of symptoms which pointed to acute tuberculosis, and the physical signs corroborated this view of the case.

A detailed report of the *post-mortem* examination will be found in the *Transactions* of this Society, vol. ii, p. 353, so that it is unnecessary for me to enter into details further than to say that the kidney was found to be occupied by a cancerous tumour the size of a cricket ball. The greater part of the growth was of a bright pink colour and firm consistence, but here and there presented points where softening and hæmorrhage had occurred. On section the tumour appeared to be limited by a capsule from the surrounding tissue.

This primary growth had given rise to a rapid dissemination throughout almost all the organs of the body. Nodules of various size, from that of a millet seed to that of a hazel nut, were found in almost all the organs, such as the stomach, intestine, liver, brain, heart, lungs, suprarenal capsules, lymphatic glands, and on the serous, mucous, and cutaneous surfaces. Indeed, the pancreas and spleen were the only two organs observed to be free from secondary formations.

In this particular case, as far as could be made out, the infective material had spread by means of the lymphatic channels. After this specimen of cancer was shown to the Society, I made a very careful microscopic investigation for the purpose of determining the mode of origin of the tumour, and also the method by which the cancer became disseminated.

First, with respect to the change in the kidney, I took a small nodule, which was situated close to the fibrous capsule of the kidney, and made a series of sections of this particular growth. At some parts the fibrous matrix was very abundant, while in other portions of the nodule the groups of epithelial cells were separated from one another only by a most delicate network of elongated cells and fibres.

In all instances the fibrous tissue of the tumour was continuous with the interstitial tissue of the kidney. When observed with the naked eye, or under a low power lens the new formation appeared to be limited clearly from the surrounding parenchyma of the kidney, but when examined more closely this limitation was found to be less sharp.

In the immediate neighbourhood of the advancing tumour the epithelium of the uriniferous tubules was found to have undergone certain changes. The cells were observed to have taken on a process of proliferation. In place of the basement membrane being covered by a single layer of granular epithelium of regular size, the individual cells were found to vary greatly in size and form, and in place of being granular they were clear, so as no longer to present the characteristic appearance of renal epithelium, and in place of being lined by a single layer of cells, the uriniferous tubules were occupied by several layers.

In some parts of the tumour the tubules were greatly distended so as to form considerable cavities, some circular, others oval or elliptical. In other parts the walls of the tubules had broken down so that one cavity communicated with another or with several. In the largest of these cavities the epithelium had undergone fatty degeneration, and was very easily separated from the section in cutting. By careful observation the metamorphoses of the normal epithelium of the uriniferous tubules could be distinctly traced, showing that the epithelium of the cancerous growth had originated in the epithelium lining the tubules.

At the point where proliferation was most abundant, these altered epithelium cells formed little groups which were sufficient to dilate the walls of the uriniferous tubules, while further away from the cancerous foci the epithelium of the uriniferous tubules was less altered from the normal type. This was not only true of the tubules collectively, but in one or two individual instances, in which a tubule was so cut as to be seen throughout a considerable extent, the progressive changes could be observed.

These observations agree with those made by Pereverseff, who demonstrated (*Virchow's Archivs*, Bd. lix) that in renal cancer the epithelium of the neoplasm remains in many instances enclosed within the basement membrane of the uriniferous tubules, and he also showed that the gradual process of transition from the normal to the abnormal can be traced within an individual tubule.

In the specimen which I have shown to the Society, the amount of connective tissue throughout the growth was in some parts considerable, so as to give the tumour an appearance of scirrhous cancer. In other parts the neoplasm was rich in cellular elements, and only a very fine and delicate stroma existed, and at one or two points the growth had degenerated and softened, as a consequence of atrophy and fatty degeneration of the epithelial cells.

In bringing my first case before the Society, I have referred briefly to the main points in the diagnosis of malignant disease of the kidney, and I now desire to make a few observations respecting the treatment of malignant disease. In a discussion on cancer conducted by the Society (*Transactions*, vol. ii,

p. 272), I expressed the opinion that cancer in all situations is primarily a local disease, and is therefore not necessarily incurable, and stated my belief that operative treatment should be resorted to, not only for the relief of the patient, but also as a curative remedy.

In both the cases brought before the Society to-night we have to deal with primary cancer of the kidney which remained localised for a considerable period. It is by taking advantage of this circumstance that the surgeon may hope in the future to secure some triumph. The difficulty we have to contend with is to know when to operate, as even the most careful consideration of the subjective phenomena is seldom sufficient to justify a diagnosis of malignant disease.

The question of the curability of malignant disease of the kidney by operation is not one which has as yet been established by statistics, as only in a few instances have the cases survived gone beyond the limit of three years. Recently I collected statistics[1] showing the result of 110 nephrectomies for malignant disease (cancer and sarcoma); of these 46 died from the operation, 22 died from metastases or recurrence, while 42 patients were said to be cured. To conclude, however, that these are all cases of permanent cure, would, I fear, be a mistake, but there is not the least doubt that in many of these instances the operation has considerably prolonged the life and relieved the suffering of the patient.

THE DIAGNOSTIC VALUE OF SUDDEN AND ACUTE PAIN AS A SYMPTOM IN ABDOMINAL DISEASE.[1]

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WE have had within the last few months a series of abdominal cases in which pain formed a prominent symptom. All of them had a sudden onset, some more, some less, with pain varying in kind and intensity. The difficulty experienced in forming a correct estimate of the nature of the condition from such an important symptom as pain alone led me to bring this subject under your notice. Some sudden disorganisation happens, and nature takes this way of calling attention to the fact.

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[1] Newman, *Surgical Diseases of the Kidney* (Longmans & Co., London, 1888), p. 407.

[2] Read before the Glasgow Southern Medical Society at a meeting held on 23rd January, 1896.

To attempt a classification of the many affections of the abdomen, simple and organic, in which pain forms a symptom, is here out of the question, so that only reference will be made to those affections which are characterised by a suddenness of onset, and of these where the pain is acute. Some of the conditions so characterised will only be mentioned by reason of their great rarity, while those directly due to traumatism will not be considered at all.

Before discussing the character and seat of the pain, we might first consider its mode of onset.

Mode of Onset.—The account given by the patient of how the pain first arose is of great importance; it enables us to limit the condition to one or other group which is characterised either by its sudden or more gradual onset. The importance of the previous history will be afterwards considered when speaking of the significance of sudden and acute pain as a symptom. Very frequently we are not asked to see the patient until the acuteness of his pain demands relief. The feeling of uneasiness which sometimes precedes the onset of severe pain might not have been considered by him as of much importance, or perhaps he attributed the feeling to something he had recently taken, or to some other cause, which might, or might not, have any bearing on its cause.

On the other hand, he might tell us that up to the present he was in the enjoyment of perfect health, when suddenly, and without any warning whatever, a severe pain started in his belly, compelling him to hasten homewards with all possible speed.

What are the affections, then, of the abdomen likely to have a sudden onset? Perhaps chief among these are the different varieties of acute intestinal obstruction—viz., internal strangulation, due to bands, or through apertures, acute intussusception, and volvulus. These, and the following other conditions: —appendicitis, acute diffuse peritonitis, hepatic colic, renal colic, intestinal colic—will be considered in the order named.

The mode of onset in the three varieties of acute obstruction just mentioned is sudden; in the forms of acute obstruction due to gall-stone, or to stricture, the onset, though sudden, is less so than in the first three. Speaking of the varieties of acute obstruction in detail, the onset of *internal strangulation*, due to bands, or through apertures, is the most sudden. The pain comes on, as a rule, so suddenly that the patient can state with certainty the hour of seizure. Treves,[1] in his book on *Intestinal Obstruction* says, in reference to this point, that in thirty-five out of fifty cases the mode of onset was distinctly sudden. This very sudden onset is what one would expect from the pathology of the condition, and, as has been pointed out, when the mode of onset is not sudden there is some unusual circumstance to account for it.

In *acute intussusception* the mode of onset is also sudden. According to the same authority,[2] this mode of onset occurs in 75 per cent of acute and subacute cases. The abrupt character of the onset is influenced to some extent by the nature of the invagination. In the ileo-colic variety the onset is more sudden than in the colic and rectal varieties. The attack may come on in perfect health, while at rest, or during sleep.

In *volvulus* the onset, like the other two, is sudden. This mode of onset occurs in 12 out of 18 cases. When the onset is more gradual there is a history of chronic constipation.

In the varieties of acute obstruction due to gall-stone, or to stricture, we have conditions which do not, as a rule, come under the heading of this paper. The onset in these, particularly the latter, is gradual.

In *appendicitis* the onset is sudden, sometimes very sudden, far more frequently so than one would be led to suppose. Fowler,[4] referring to mode of onset in appendicitis, says, that out of 169 cases there were only 8 where the onset of the attack was not sudden, and that he considers this suddenness of onset so pronounced a feature of the condition that in the differential diagnosis only those affections which, in common with appendicitis, have a sudden onset, would he take into account.

In *acute*, general or diffuse, *peritonitis*, secondary to perforation of stomach or bowel, or to rupture of abscess, or accumulation of various kinds, the mode of onset is sudden, sometimes very sudden. If pain be present before, as a symptom of primary condition, it is suddenly greatly aggravated, with possible alteration in its site (see on) at the occurrence, or very soon after the perforation or rupture, as the case may be.

This sudden onset of pain, or sudden aggravation, is of great diagnostic value, and was notably so in a case of appendicitis recently under observation. The patient told me that she was suddenly awakened by a severe pain, rendering the whole abdomen so tender that even the pressure of the bedclothes was painful. Other symptoms were of course present which aided the diagnosis, but need not now be considered. The appendix was removed thirty-six hours later, and revealed a perforation at its extreme tip, with marked injection of vessels in serous coat of bowel, and here and there slight adhesions.

Many similar examples could be given from various writers. This mode of onset as a symptom of peritonitis has only reference to peritonitis in its acute form.

In *hepatic colic*, due to attempted or actual passage of a gall-stone, the onset is here again most usually sudden. These attacks come on often without any warning, or without any previous digestive derangement or any complaint at all.

In *renal colic* the mode of onset depends upon whether the stone has entered or is about to enter the ureter. It is most frequently sudden.

As *intestinal colic* depends upon a variety of causes, the mode of onset must also of necessity vary. Quain, in his *Dictionary of Medicine*, mentions four distinct varieties of intestinal colic, classified according to the nature of the exciting cause:—(1) That due to direct irritation of bowel, fermentation of undigested food, decomposition of retained fæces, worms, &c.; (2) that due to morbid state of bowel itself, enteritis; (3) that due to reflex causes, emotional disorders, disease or irritation elsewhere, uterus, dentition, exposure; (4) that due to blood-poisoning, lead, copper, gout, rheumatism.

Taking these different causes as a whole, the pain is, as a rule, sudden in its onset—sometimes very sudden. The mode of onset in this class of cases does not help us so much as the character of the pain which will be immediately considered. The term enteralgia, a neuralgic condition of sensori-motor nerves, clinically resembles intestinal colic, and is similar in its mode of onset.

Besides these various conditions, there are other abdominal affections likely to have a more or less sudden onset, but from their comparative rarity require only to be named—twisting of pedicle of ovarian cysts, hernia of ovary, dissecting aneurism of abdominal aorta, embolic and other affections of various abdominal organs.

Character of the Pain.—To define pain as an uneasy sensation does not help us much; we want some qualifying adjective so that we may know the kind of pain, and another to indicate its intensity.

The kind of pain is spoken of as throbbing, gnawing, aching, tearing, lancinating, keen, sharp, dull, heavy; and its intensity by terms such as slight, moderate, severe, violent, intense, excruciating, agonising.

By the use of such terms we are assisted in estimating the character of the pain; but we know that every person is not affected alike, and what would be the most severe suffering to one is not so to another.

The greater the sensibility (civilisation?) of the individual the greater the pain, so that in accepting the patient's statement as to the kind and intensity of his pain, his whole aspect must coincide with his description. Then, again, pain varies according to mode of onset and to the organ affected. Many a chronic lesion is accompanied by little or no pain. All the acute affections of the abdomen have very much the same kind of pain, though the intensity varies.

In describing the character of the pain in these various acute conditions, we shall follow the same order as we did when considering their mode of onset.

Of the varieties of acute obstruction, *internal strangulation* due to bands, &c., not only comes first as to suddenness of onset, but first as to intensity of pain; it is most intense, severe, agonising.

Treves,[6] writing of this, says—"The pain attending these cases of intestinal obstruction is among the most conspicuous and most constant of symptoms . . . generally at commencement of great severity and of a gripy and colicky character." In several instances the patient is spoken of as being bent double with the pain, or even as rolling on the floor in agony. In no case has the pain been described as trivial.

In *acute intussusception* the pain in intensity is severe, and in kind paroxysmal, "leading to periodical screaming fits in children." This periodicity of the pain is a marked feature of intussusception, and is due to violent peristaltic action of the bowel.

It is said that when the small bowel is the seat of the intussusception the pain is more severe, and the interval between the paroxysm shorter.

In *volvulus* the pain at first is moderate, less intense than internal strangulation; in kind paroxysmal, less so than in intussusception.

In impacted gall-stone and in stricture the pain in intensity at first is slight, often little more than uneasiness, in kind paroxysmal at a later date.

In *appendicitis* the character of the pain, as in the other conditions, varies. When the onset is sudden, which is by far, as we have already seen, the most frequent mode of onset, the pain in intensity is most severe, even agonising. Barling[7] puts it thus:—"The pain may be of the greatest severity, and I have seen a patient bathed in sweat, and rolling about the bed, as in the worst attacks of renal colic. . . . The seizure is frequently spoken of by the patient as cramp or spasms, or a bilious attack. . . . This is a typical onset. . . . Though not constant, it is present in a large proportion of cases, and I am convinced it is not rarely overlooked."

Fowler,[8] writing on same subject, says that at the commencement of the attack the pain is acute and lancinating; that this was the character of the pain in all his cases (169) with the exception of three, and in two of these it subsequently assumed a lancinating character. In these three cases the appendix was extra-peritoneally situated.

In *acute general peritonitis*, secondary to perforation of stomach or bowels, or to rupture of abscess, or other accumulation, we have to deal with an irritant suddenly let loose into a presumably normal peritoneal cavity. It is in this form of peritonitis that pain is a prominent symptom. Here also it is difficult to describe the kind of pain other than to say that it is usually most acute, and more or less continuous, not paroxysmal, and in intensity most severe at times—as severe as that of internal strangulation.

Within the last few weeks we have had to deal with two cases of acute peritonitis following perforation, the one of appendix, the other of stomach. In the appendix case the previous history was known, only however some twenty-four hours prior to perforation; the sudden accession of severe general pain (situation see on) along with the other symptoms indicated perforation.

In the other there were no gross symptoms indicating the presence of gastric ulcer, and this, as a cause, was only regarded as a possibility. *Post-mortem* examination revealed the presence of a large ulcer on the anterior wall of the stomach.

In *hepatic colic* the kind of pain is described as aching, cutting, tearing, or burning; in intensity, sometimes slight, but usually so severe that the patient writhes and cries out in agony. It is accompanied as a rule by a feeling of tightness, and is intermittent or paroxysmal.

In *renal colic* the pain resembles very much that of hepatic colic, both in kind and intensity.

In *intestinal colic* the character of the pain varies somewhat with the cause. It is oftentimes severe, gripy, colicky, occasionally agonising, so as to cause the patient to bend forwards and assume all kind of contortions in the hope of finding relief. The intermittent or spasmodic character of the pain is a marked feature of this condition; the pain may disappear altogether for a time.

Seat of the Pain.—We must first of all, in our endeavour to find the cause of the pain, distinguish between that tenderness, sensitiveness, actual hyperæsthesia in some cases of the abdominal parietes which frequently, indeed usually, accompanies sudden and severe internal abdominal pain.

Treves,[9] in his Lettsomian Lectures, 1894, points out the very close association that exists between the nerve supply of the abdominal wall and that of the internal organs. The lower six or seven intercostal nerves not only supply the lower intercostal muscles, but also the muscles of the abdominal wall, external and internal oblique, transversalis, and rectus.

From these same nerves the splanchnics arise; these, as we know, communicate with the great sympathetic plexuses of the abdomen, solar, cœliac, superior mesenteric. This, naturally, accounts for the diminished abdominal respiration and the tenderness of the abdominal wall when any irritant affects these plexuses.

We know it to be a fact, also, how frequently the pain in sudden and acute abdominal conditions is referred to the peri-umbilical region.

We have the explanation in the situation of these nerve centres. This situation of the pain, however, with its accompanying tenderness and rigidity of the abdominal wall, becomes less marked as the illness progresses.

Taking the same order, we have first to consider the seat of the pain in the different varieties of acute obstruction.

In *internal strangulation* the pain is referred to the umbilical region. This is as we would expect, for it may be taken as a general rule that, the more sudden the onset and the more acute the irritant, the more likely is the pain referred to the site of the plexuses. Hence, the seat of the pain in these instances is no guide to the seat of the disease.

Tenderness of abdomen as demonstrated by pressure is generally, in this condition, absent at first, but appears later, either limited or general, according to the extent that the peritoneum is involved. It may here be stated, in reference to abdominal tenderness on pressure, either limited or general, that it means an extension of the mischief to the peritoneum. This statement has, of course, its qualifications, and one qualification in particular—that after the bowel has been in violent peristaltic action for a time it is liable to cramp. This state also gives rise to tenderness on pressure, but to tenderness with a difference: it is relieved by firm pressure, whereas that due to peritoneal implication is aggravated.

As *acute intussusception* is most frequently met with in children, we cannot with same precision localise the pain; but we would, from the suddenness of onset, *à priori*, expect the pain to be referred, as in internal strangulation, to the site of the great nerve plexuses. This is put down as its most usual seat.

Tenderness on pressure is not at first present; in many cases pressure affords relief—cramp.

In *volvulus*, as the onset, though sudden, is less so than either of the first two, the site of the pain varies, frequently over nerve plexuses, occasionally over site of twist.

Tenderness on pressure is absent at first, but *very soon* makes its appearance over region involved. This is due to the fact that the peritoneum in the distorted loop is very early implicated. Treves, emphasising this point, says—"There is no form of intestinal obstruction where marked pain on pressure is elicited earlier than in volvulus, if exception be made of certain examples of acute intussusception."

In obstruction due to gall-stone or to stricture, the pain is usually referred to seat of obstruction.

The site of the pain in *appendicitis*, like the cases just mentioned, depends upon the suddenness of onset. This sudden onset we now know to be by far the most frequent, and we would thus expect the pain to be referred to the site of the nerve centres. Fowler, in the paper already referred to, says—"The location of the primary pain is usually referred to the neighbourhood of the umbilicus; next in frequency it is complained of in the epigastrium; very infrequently in the region below the umbilicus, and least frequently of all is it referred to the appendix itself." In only 38 of his series of 169 cases was the pain first referred to the right iliac region. In all the others the pain was either peri-umbilical, epigastric, or both.

Barling and others write in the same strain. This site of the pain, of course, refers to the commencement of the attack later, or, if the onset be not so sudden, the appendix is the seat.

Tenderness on pressure is usually present from the first. In fact, it has been said that the acute pain present at what is taken to be the onset of the attack is an indication that the inflammatory process, which before had existed in the mucous and muscular coat, but without much or any evidence of its existence, had reached the peritoneal covering. The tender or sensitive area then corresponds to the position of the appendix, and the most exquisitely tender part, according to M'Burney, mid-way between right anterior superior spine of ilium and umbilicus, but the absence of especial tenderness at this point does not exclude the appendix as a cause, as it (appendix) occasionally passes down into the pelvis, and there becomes fixed, or lies to the outside or entirely underneath the cæcum.

An interesting fact was recently ascertained in a case of appendicitis. If pressure were made over M'Burney's point, not only was pain complained of over seat of pressure, but also in epigastric region. Similarly, if pressure were made over epigastric region, pain was not only complained of there, but in the region of the cæcum as well, and, in the latter situation, passed in a direction from right to left towards umbilicus. This I attributed to a specially susceptible state of the nerve centres, but very soon after came across Fowler's article in which reference is made to this very point. He says, "Tenderness was frequently elicited after the first thirty-six or forty-eight hours, when adhesions had formed, by making pressure upon portions of the abdominal wall more or less remote from site of appendix. Tenderness was felt in the right iliac region under circumstances of normal position of cæcum, although pressure made elsewhere. Its presence is believed to be due to dragging upon adhesions about the appendix, or to disturbance of inflamed structures involved, in consequence of transmitted pressure."

If such be the explanation, why should pain be felt over the plexus when pressure is made in affected region?—unless the pressure, by disturbing the adhesions, irritated the peripheral branches of the sympathetic, and the pain in consequence referred to the centre.

In *acute diffuse peritonitis*, secondary to perforation, &c., the pain is at first all over, but if any one point is referred to oftener than another, it is over the umbilical region, and thus no guide to seat of rupture or perforation. It may be, and is at times possible, at a later stage, for the patient to indicate seat of trouble, but this is not so at the beginning.

The cause of the pain is attributed to shock, and may lead to a fatal result before a general inflammatory process can have time to take place.

In this condition the tenderness of abdomen to pressure is great all over, and very characteristic, so great at times that pressure, however slight, increases the suffering.

In *hepatic colic* the pain is spoken of as arising at the pit of the stomach, or at the umbilicus, radiating to the back between the shoulders, or to chest or to shoulder-tip. These situations of the pain can be accounted for as in other conditions, by irritation of solar and other plexuses, and conducted by their connecting branches.

In *renal colic* the seat of the pain, like the character, depends upon situation of calculus. When the stone has entered the ureter the pain is most intense, as a rule, in affected loin, though this is by no means constant, and shoots down the course of the ureter to bladder and testicle.

Tenderness on pressure over affected organ usually present.

The pain in *intestinal colic*, taking all the various causes into consideration, begins, and is most severe, in umbilical region, extends to other parts, even involves entire abdomen; at one time most severe at one part, subsides, and reappears at another.

In regard to sensitiveness of the abdomen to pressure, here we have a condition where pressure gives decided relief. We find the patient pressing both his hands on the abdomen or lying with the body prone, so as to bring the abdomen in contact with some firm resisting substance. This is a marked contrast to some of the other conditions alluded to.

The seat of the pain in most of the other causes of sudden onset, such as twisted ovarian pedicle, dissecting aneurism, &c., is referred to the nerve plexuses.

Significance of Sudden and Acute Pain as a Symptom.—In the differential diagnosis of these various abdominal conditions do the mode of onset, character, and seat of the pain help us.

Certain conclusions might be drawn:—

(1) That the more sudden the onset, as a rule, the more severe the pain, and the more sudden and severe the pain, the less does its site indicate the seat of the disease.

(2) That, given a case of sudden and acute abdominal pain, it will be most likely one of the conditions mentioned.

(3) That if the onset, taking the mode of onset alone, be very precipitate, then internal strangulation, acute peritonitis (perforation), appendicitis, should first be thought of.

(4) That, if the pain be very severe, agonising, and more or less *continuous*, then acute peritonitis (perforation), internal strangulation; if severe, at times agonising and *paroxysmal*, then intussusception, volvulus, hepatic, renal, or intestinal colic.

(5) That, if the pain be accompanied by diffuse and especial abdominal tenderness, then acute peritonitis; if tenderness localised and early, volvulus; if localised and later, intussusception, appendicitis, internal strangulation, hepatic, and renal colic; if pressure relieves throughout, intestinal colic.

ABDOMINAL CONDITIONS IN WHICH SUDDEN AND ACUTE PAIN FORMS A PROMINENT SYMPTOM.

Disease.	Mode of Onset.	Character of Pain.		Seat of Pain.	Tenderness on Pressure.
		In Kind.	In Intensity.		
Acute Intestinal Obstruction—					
(*a*) Internal Strangulation due to bands, &c.	Very sudden.	More or less continuous.	Most intense, severe, agonising.	Epigastric, or umbilical region.	Pressure at first relieves, afterwards aggravates.
(*b*) Acute Intussusception.	Sudden, to very sudden.	Paroxysmal.	Severe.	Epigastric, or umbilical region.	Pressure at first relieves, very soon aggravates.
(*c*) Acute Volvulus.	Sudden.	Paroxysmal — less so than (*b*).	Moderate.	Umbilical, frequently over twist.	Pressure, sooner than (*a*) and (*b*), causes pain.
(*d*) and (*e*) Due to Gall-stone or Stricture.	Less sudden—gradual.	Paroxysmal at later date	Moderate, slight.	Over seat of obstruction, though not always so.	Tenderness over seat of obstruction.
Appendicitis.	Sudden — very sudden.	More or less continuous.	Most intense, agonising.	At first peri-umbilical, later over appendix.	Greatest in right iliac region, point pressure (M'Burney's point).
Acute Peritonitis (general or diffuse).	Very sudden.	Continuous.	Very severe.	All over, referred usually to the epigastric or periumbilical region.	Very tender all over, can't bear pressure of bedclothes.
Hepatic Colic (gall-stone).	Sudden — very sudden.	Aching, cutting, &c. —paroxysmal.	Severe, agonising.	Epigastric, radiating to between shoulders, or to shoulder-tip or chest.	Pressure at first affords relief, later extreme tenderness over gall-bladder.
Renal Colic (calculus).	Sudden.	Aching, burning—paroxysmal.	Severe, agonising when passing.	Affected loin, passing to front down ureter to bladder and testicle.	Over affected kidney—(*a*) in loin, (*b*) in front.
Intestinal Colic.	Sudden (as a rule).	Decidedly paroxysmal.	Slight, severe to agonising.	Varies, umbilical, usually one part one time, subsiding and reappearing at another.	Relieved by pressure.

Uncommon causes of sudden and acute pain not tabulated.

In almost every case, however, the previous history, if carefully and accurately inquired into, gives some indication, and this, along with the symptoms accompanying the pain, which, of course, considering pain alone as a symptom, we have completely ignored, will also help.

Treves, who has perhaps written and done more abdominal work than most surgeons, writes in this strain:—"It may almost be said that all quite acute abdominal troubles commence with the same train of symptoms. . . . It is quite possible, indeed quite usual, for these various conditions to present at first symptoms common to all, and which merely indicate that a shock has been communicated to the great abdominal nervous system."

To attempt to relieve the pain, as we are called upon, and often compelled to do, before we have formed a diagnosis, masks, perhaps, the most important symptom in acute abdominal disease, gives us a wrong impression as to the gravity of the case, and places what would before have been a favourable case for operation among the black list.

REFERENCES.

[1] Treves, *Intestinal Obstruction*, p. 69.
[2] *Ibid.*, p. 218.
[3] *Ibid.*, p. 142.
[4] Fowler, *Annals of Surgery*, 1894, vol. xix.
[5] Brownlee and M'Harg, *Glasgow Medical Journal*, November, 1895.
[6] Treves, *Intestinal Obstruction*, p. 71.
[7] Barling, *British Medical Journal*, 1895, p. 1235.
[8] Fowler, *Annals of Surgery*, 1894, vol. xix.
[9] Treves, *British Medical Journal*, 1894, p. 454.

PUBLIC HEALTH.

OBSERVATIONS ON EPIDEMICS OF CHOLERA IN INDIA, WITH SPECIAL REFERENCE TO THEIR IMMEDIATE CONNECTION WITH PILGRIMAGES.

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(*Continued from* p. 450, vol. xliv.)

DURING the past eleven years the highest number of deaths from cholera in the town of Puri have occurred in those months when the principal festivals of the year were held;

for, out of a total of 4,262 deaths from this cause during these years, no less than 3,802, or 89 per cent, originated with the arrival of pilgrims. The same thing was observed as far back as the year 1868, when, in the first annual sanitary report, the civil surgeon then in charge of Puri district remarked:—"Cholera is a constant visitor, and frequently breaks out amongst the pilgrim assemblies at the several religious fairs held in the district."

In several years following similar observations were recorded and remarked on, thus:—"The pilgrims visiting the place suffered most severely." "The disease, on the whole, confined itself to the villages near the main traffic roads." "There were two distinct outbreaks; the first was started by pilgrims, and was extinct at the end of March; the second occurred in June amongst pilgrims, and ceased in July."

In 1874 it was noticed that wherever rapid communication and a comfortable mode of conveyance occur along pilgrim roads, as at Gaya (not at Puri), cholera decreased, and did not spread to the people generally. One of my more immediate predecessors has remarked:—"The see-sawing movement is so striking that no one residing in the place for some time can fail to notice it."

These points have been specially touched upon in view of the diversity of opinion regarding the effect of pilgrims in the dissemination of cholera throughout India.

Whatever be the case with regard to other provinces and districts in India, I think I have produced abundant and conclusive evidence that, so far as Puri is concerned, the disease is invariably imported; and where outbreaks in district villages have been investigated, they could, without exception, be traced to pilgrims or travellers along pilgrim routes. In some of the latest reports of the Sanitary Commissioners with the Indian Government it is held presumable that, owing to climatic conditions, outbreaks traced to pilgrims might have occurred irrespective of pilgrim influences. On the other hand, it is as probable that they would not have happened; or if so, in a much less degree of severity, and with a considerably lower mortality. So inseparably, does it appear from personal observation, are cholera and pilgrimages connected, that in order to prevent the former it is necessary to prevent the latter. So long as pilgrimages are tolerated, or considered so essential by the Indian native community from a religious point of view, so long will the death-rate from cholera remain high, and that, too, in spite of climatic or other conditions.

Incubative Period of Cholera.—We have already discussed this point in connection with some cases cited to show the evil results of human intercommunication. The evidence went to show that, in all probability, the period of incubation, in those cases whose history could be traced, was under forty-eight hours. The following cases lend support to the opinion:—

(1) Uchab Dolai, was employed at a salt factory at a village called Tua, situated on the banks of the Chilka Lake, in the district of Puri. He left Tua on the morning of 13th June to go and purchase rice at his native village, at which he arrived about noon. Twelve or fifteen persons had died from cholera in this village during the previous fortnight. He set out on his return journey early on the morning of the 15th so as to resume his work at the usual hour (6 or 7 A.M.) While at his native village he obtained his drinking water from a tank in which the clothes of cholera patients had been washed. (I would mention here that there are no wells in this part of the district, the inhabitants depending entirely upon rain-water collected in tanks, which are usually fouled to the highest possible extent.) While at work on the 15th he was attacked with cholera at mid-day, and died at night. There was no case of cholera in Tua previously, and as the clothes of the deceased were burned under the order of the Salt Department, and in the presence of the hospital assistant, and other precautions taken, the disease did not spread in the village.

(2) There was a death from cholera in the village of Chuty Polung. On the day of the Saradh ceremony of the deceased, Kalia Pauda, of another village 2 miles distant, was present, and ate parched rice and curd. He was attacked with cholera the following day (2nd January) and died on the 3rd. His sister-in-law was attacked on the 5th, and died on the 6th. A girl, aged 8 years, was attacked on the 6th, and died on the 8th. A fourth person was attacked on the 7th, and recovered. Other two cases occurred. The outbreak in Chuty Polung was traced to another village 1 mile distant.

In my whole experience I have not come across a case in which there was a single fact pointing to a longer period than three days after importation of the disease, and in the great majority of cases in which there is a definite history the period appears to be well under three days. Bristowe says:—"The duration of the incubative stage of cholera is not certainly known. It probably varies generally between a few hours and three days." The Vienna delegates affirmed their belief that the period of incubation of the disease did not last beyond a few days. Dr. Macnamara gives details of some cases bearing on the question in the *Indian Medical Gazette* for March, 1872. He gives an account of a local epidemic in Calcutta, in which six persons were attacked by cholera within forty-eight hours after exposure to the disease germs.

Parkes, in his book on *Practical Hygiene*, says:—"Then as the incubative stage can certainly last for ten or twelve days, and there are some good cases on record where it has lasted for more than twenty, it is clear that quarantine, unless enforced for at least the last period of time, may be useless.

I have exhausted a very large amount of literature on the subject; and where I find numerous instances in which the period of incubation does not appear to have been more than forty-eight hours, I have failed to discover one in which there was a probability of its extending to such an extraordinary length of time. I have only to state that if such instances have occurred, some important details in the history has been accidentally omitted or kept back. We have only to consider the fact that the great majority of the natives of India are absolutely ignorant of the danger of carrying about clothing, soiled with choleraic dejecta, in order to arrive at the probable explanation of such indefinitely long periods of incubation. If every bundle belonging to this class of people was carefully examined during epidemic outbreaks of cholera, I venture to believe that in every company would be found a portion of clothing formerly worn by a deceased relative or friend. I have myself caused bundles to be opened, the stench from which was sickening. On the other hand, I have never yet known a native of the country to confess that he possessed such an article. The truth can only be elicited by personal inspection of their possessions. When we consider, therefore, the innumerable ways in which infective material can be carried about, we are not astonished that the disease may only appear at long intervals after what might be regarded as the only possible time and circumstances of exposure.

Direct communication of the disease.—During the past two years I have only known three instances in which it is probable that the disease was communicated to healthy individuals directly. A father attended his son who was under treatment in the Cholera Hospital at Puri. The son recovered. The father was attacked and died. A sweeper girl was employed in the town assisting her mother to cleanse latrines during a cholera epidemic. She was attacked with the disease and died. A sweeper was employed cremating the bodies of those dead from cholera. He was attacked with the disease and died. He attributed the disease to the fact that kerosene oil had accidentally got into his rice (*sic*). Wherever discipline can be enforced, and cleanliness and disinfection insisted upon as in Puri Municipal and Government Hospitals, such occurrences are rare. During the years 1893 and 1894, 21 different persons were employed attending cholera cases in the Puri Jail. With one exception, a prisoner who had attended his brother, but who himself had been exposed to the risk of contracting the disease outside the jail, they all escaped. During the same years 1 civil surgeon, 2 assistant surgeons, 5 different Civil Hospital assistants, 1 compounder, 1 assistant health officer, 1 conservancy inspector, 1 municipal overseer, 8 police constables, 4 bearers supplying food to the sick, 28 coolie bearers conveying the sick to and the dead from the cholera hospital, 10 coolies employed cremating the dead, and 10 mehters for removing cholera dejecta from the hospital wards were engaged during epidemics, and, with the exception of one of the coolies employed cremating the dead, who was attacked and died, none of them suffered from the disease. Not one of the establishments in any of the different district hospitals in which cholera cases were treated showed any symptoms of the disease; and out of 382 sweepers employed by the municipality cleansing latrines only one was attacked—the girl referred to above, who assisted her mother. The only reason which can be assigned for their remarkable escape is that they scrape up the night soil with ladles made of cocoa-nut shells, to which handles are attached, and thus avoid handling the dejecta. They are, moreover, exceedingly careful about washing their hands and bodies before partaking of food.

Instances have been recorded, in order to show that the atmosphere is a possible means of spreading the disease, but as most of the cases cited happened fifty years ago, when less was known about the disease and its contagious properties, or how the contagion spread, they must be accepted with a certain amount of caution. Fear of contracting the disease may give rise to symptoms of a choleraic nature. The chaplain of Cuttack, a fresh arrival in India, visited the Puri Cholera Hospital at a time when it was full of patients. He stood with his back towards the building and his face towards the sea, which clearly showed that he did not feel quite at home. In the evening he had diarrhœa and vomiting, which lasted the whole night and part of next day, after which no other symptom manifested itself. It may be safely assumed, I think, that the disease is not at all communicable through the atmosphere, or, if so, to a very inappreciable extent. I have already said that the atmosphere of cholera hospitals or sheds may smell to an unbearable extent, and yet not give rise to cholera amongst attendants on the sick, who not only live in, but sleep in them.

Meteorology.—No two years could have presented such marked differences in the amount of rainfall and its distribution throughout the different months of the year, or such marked differences in temperature in those months when cholera attained its maximum degree of intensity. Eighteen deaths from cholera were registered in the town from 1st January to 30th June, 1893. One case occurred in each of the months April, May, and June. 115 deaths from this cause were registered in the district during the same period of that year.

Rain fell on two days in January (2·18 in.), on five days in February (3·09 in.), on four days in March (1·05 in.), two days in April (0·07 in.), on eight days in May (21·68 in.), and on ten days in June (2·38 in.).

The total rainfall during the first six months of the year 1893 was 30·45 inches.

Nineteen deaths from cholera were registered from 1st January to 30th June, 1894. Rain fell on one day in January (0·15 in.), none fell in February, and none in March, during which month, however, 10 cases of cholera were reported. Rain fell on two days in April (0·72 in.). None fell in May. Rain fell on fourteen days in June (4·93 in.), of which 3·33 inches fell between the 19th and the 30th.

During the first six months of the year 1894 the total rainfall was only 5·80 in. In July, 1893, rain fell on ten days (3·58 in.), and in July, 1894, on twenty-one days (12·10 in.). In 1893 cholera broke out in epidemic form on 13th July, and in 1894 on 2nd July. 174 deaths occurred from cholera during July, 1893, and 124 in July, 1894, the epidemic occurring in both years during the assemblage of pilgrims at the time of the Car Festival, and continuing in 1893 till 7th August, and in 1894 till 13th August. It is worthy of note that although the death-rate in 1893 was higher in number, it was vastly less than in 1894, when we regard the fact that the number of pilgrims assembled was infinitely greater in the former than in the latter year. The fortunate result was attributed to the abundance of rain distributed, as it was, in amounts throughout the preceding months of the year 1893, an opinion which was supported by the fact that on 7th August, after a long period of comparatively small rainfall and excessively high temperature, seven cases of cholera were reported, being the highest number on any single day during the epidemic. On the same day 0·78 in. of rain, and on the 8th 3·34 in., were collected. No case occurred thereafter, although no rain fell and the temperature continued high, till 23rd August, when a suspected case occurred near the Post Officer's residence. As the patient, however, was going about as usual next day, it was returned as a case of choleraic diarrhœa. Atmospheric conditions, judging from former experience, was clearly favourable to another outbreak, and it was considered that a fall of 2·87 in. on the same day prevented such an occurrence. After 21st August only 8 cases of cholera occurred during the year. In September, 18·82 in. of rain, in October, 8·32 in., and in November, 0·20 in. were collected. No rain fell in December.

It appears, therefore, that during the year 1893 the rainfall tended to check the dissemination of the disease, and to cut short the duration of epidemic outbreaks. The disease prevailed chiefly during periods of scanty rainfall, accompanied with a high temperature of the atmosphere.

It would seem that the rainfall had a precisely opposite effect, and that the temperature of the atmosphere did not enter, to any appreciable degree, into the causation of the two epidemics which occurred during the year 1894. Practically, no rain fell during the first five months of the year 1894, and yet, during that period, only 19 deaths from cholera occurred in the town, against 17 during the corresponding months with an excessive rainfall in 1893. Out of a total rainfall of 5·80 in. during the first six months of 1894, not less than 3·33 in. fell towards the end of June. The temperature, from 10th to 18th February, varied between 83·7° F. and 93·3° F. One case of cholera occurred on 16th February (temperature, 85·8°); and another case on the 18th (93·3°). Three cases occurred on the 28th (89·2°); one case occurred on 1st March (85·8°); two cases on the 9th (92·9°); two cases on the 14th (87·4°); two cases on the 15th (85·9°); one case on the 16th (86·3°); one case on the 20th (88·0°); one case on 4th April (90·0°); and one on the 5th (89·4°).

In February and March the disease appeared to follow foggy, dark, gloomy, and cloudy weather.

No case of cholera was reported after 5th April till 29th May, although the temperature continued unusually high, except on 19th, when it dropped 4° after a thunderstorm, and a fall of 0·70 in. of rain on the 18th. Indeed, the temperature on 30th April was 94·8°, and on 14th May up to 95·6°, and continued over 90° till 9th June, when it fell slightly after a shower of rain. On 22nd June the temperature was 93·4°, but fell to 86·4° after a fall of 1·62 in. of rain. On 29th June rain fell continuously for twelve hours, and 0·92 in. were collected. On 30th, 0·12 in. were registered.

During the greater part of June it was either a dust-storm, sultry or dark gloomy weather, passing showers, and towards the end of the month, thunder and lightning at a distance, and heavy rain. Cholera, however, did not occur in the town during the month of June. Tanks, roadside ditches, and pools, on the following day, began to fill up from rise of subsoil water level. On 3rd July the first batch of pilgrims for the Car Festival arrived in the town, having passed through the storms of the latter portion of June, and endured the ordinary hardships of the journey, intensified by the state of the weather, and seven were reported straight off to be suffering from cholera.

During the month of July rain fell on twenty-two days out of the thirty-one. The temperature, except during two days (on 10th, 91·4°, and on 11th, 91·4°), was well under 90° during the whole of the month. From 19th June to 31st July 15·41 in. of rain were collected, of which 12·10 in. fell in July. The disease began to abate, it would appear, simultaneously with a decrease in the rainfall, for, from 1st to 13th August, after which no cases occurred, only 2·62 in. fell. The temperature during July and August showed no marked difference. In fact, August was the hotter month of the two, day for day, and neither of them was anything like as hot as May, when only one case occurred, or June, when no case occurred. It is reasonable, therefore, to suppose that the temperature could not, in itself, have played an important part in the causation of the epidemic, while, on the other hand, the opposite seems to hold good with regard to the rainfall. The epidemic ceased, I have already said, on 13th August, from which date till the 31st, 2·49 in. of rain fell. In September no rain fell on fifteen different days; on other five days only 0·36 in. fell. On the 1st, 7th, 8th, 15th, 24th, 25th, 26th, 27th, and 28th of September respectively, 0·60, 0·59, 1·37, 1·64, 0·57, 0·89, 0·22, 0·51, and 0·52 in. of rain were registered respectively. On 1st and 2nd October no rain fell. 1·39 in. were collected on the 3rd; 0·11 on the 4th; 0·07 on the 6th, when one case of cholera was reported; and 3·88 in. were registered on the 7th, when seven cases occurred. Although the temperature was excessively high in September, no case of cholera occurred again, apparently lending support to the belief that high temperature in itself is not sufficient to cause epidemics of cholera.

The heavy fall of 3·88 in. of rain on 6th October occurred at a time when pilgrims were again on the march to Puri. 13·32 in. fell during the month, of which on eight days none fell.

The second epidemic of cholera lasted from 6th October to 28th November. It began, however, to abate on 16th November, six days after cessation of rain, and only 9 cases were reported from 16th to 28th, after which date no rain fell. It is to be noted that the town and district of Puri were practically pilgrimless, and there were no fresh arrivals. Only one case occurred during the rest of the year—viz., on 5th December. As, however, this was a death reported by the police, and no history was obtainable, it may be assumed that the case was one of either dysentery or diarrhœa, as all such cases are invariably placed in the same category as cholera by this uneducated body of registrars. From a consideration of the foregoing observations, it becomes evident that, whatever part meteorological conditions play in the causation of cholera epidemics, or otherwise influencing them, pilgrimages, in themselves, are responsible to a very large extent, and I shall endeavour, under the following heading, to shew in what way it appears probable that cholera and pilgrimages are so closely associated with each other. I have already shewn that they are almost inseparable, but have not ventured to express an opinion as to why that is so.

Etiology of the disease.—It would be merely an attempt at hair-splitting to dispute the contagious properties of choleraic discharges, or that water and food are the principal vehicles by which the poison is introduced into the alimentary system, in face of the vast amount of evidence which has been collected to prove that such is the case. Whether the comma bacillus is the essential agent in the production of the disease has been subjected to a great deal of discussion by distinguished bacteriologists, a few of whom still oppose the theory. Whatever may ultimately be demonstrated to be beyond question the specific cause, it cannot be denied that cases occasionally crop up in which it is difficult to believe that any specific virus could have been the prime causation agent. The histories of all cases which I have investigated during the past two years go to shew the intimate connection with unwholesome food consumed by the patient. The fact that the great majority of cases occur during the night or very early in the morning seems, at a first glance, to lend support to the theory, and such a belief is strongly rooted in the minds of the native population of India, however erroneous their ideas may be. Civil hospital assistants, and that more highly educated class of medical officers—assistant surgeons—entertain such a notion, and in reports submitted by them, food receives a prominent and water a very undignified position in the etiology of the disease. During long marches, especially in wet weather, pilgrims subsist on parched rice, raw vegetables, unripe or over-ripe fruit, sweetmeats of every conceivable variety, containing a liberal admixture of fat, which they consume in large amount. Other cases occur which shew a period of starvation, followed by gormandising bad food bought at the lowest possible price and proving fatal, accompanied with symptoms, between which and those of true cholera, whose diagnostic feature is supposed to be the presence of the comma bacillus, the line of demarcation would be a very fine one indeed. In the absence of a bacteriological examination it could not, of course, be positively asserted that the causation agent is not the comma bacillus. Nevertheless, the circumstances under which such cases occur are so strikingly peculiar and mysterious that one might almost positively affirm that this organism could not possibly have entered into their causation. These cases, relegated to the category of ptomaine poisoning, are as deadly as cholera, used in its main meaning, although, perhaps, not equally, if at all, contagious. It has been shewn by bacteriologists of great repute that there does not exist one specific comma bacillus, but that certain distinct forms, subjected to numerous conditions of cultivation for years together, continue to shew marked differences, and that no common average form has ever been attained. Moreover, they dispute, on scientific grounds, that all the distinct forms of comma bacilli are mere varieties of one species. They further dispute that cholera can be ascribed to the action of such organisms existing in the alimentary canal in cases of the disease seeing that cases occur in which there is no evidence of the presence of comma bacilli of any kind. The same authorities believe that, if cholera can be caused by any such organisms growing in the intestinal tract, these have yet to be found, and state that there are many facts suggesting that the comma bacilli are the consequence and not the cause of the disease, but grant that even if the consequence they may give rise to products which may become absorbed when the active condition of the intestine is re-established, and thereby affect the ultimate course of the disease.[1]

The cases which I have referred to, as belonging in all probability to the category of ptomaine poisoning, belong to the class in which such authorities maintain that there is no evidence of the presence of comma bacilli. Doubts on points of this nature can only be removed by an exhaustive bacteriological examination during severe and extensive outbreaks, and in all cases which occur in sporadic form at what may be regarded as seasons unfavourable to the growth of the germs. It is clear that in a district such as Puri there is a wide field for investigation, and the only apology I can offer for not having availed myself of the opportunity is the multiplicity of other important duties and want of suitable equipment. With this apology for shortcomings, and consoling myself with the thought that the subject is receiving the attention it deserves at the hands of competent observers, I shall proceed to state what has struck me as probable factors in the causation and dissemination of cholera, leaving it to such observers to settle moot points.

In some villages in the district of Puri there are no wells. The village tank is used for all purposes, and it is a singular fact that not only are the villages most severely attacked, but ever since they had an existence cholera has seldom or never been absent from them. In every other place in India where tanks afford the only water supply, the same state of matters exists, and pilgrims and residenters in the villages using the water thereof are equally attacked. Such is not the case where well-water is provided and used by the people. Village tanks, without exception, are so foul, that where well-water can be obtained for drinking purposes, tanks are reserved for bathing and washing clothes. Pilgrims, as a rule, are absolutely indifferent to the nature of the water they drink when hot and thirsty, rush for the nearest supply they can find, and consider it sufficient to cast aside the scum of filth that may have formed on the surface of the water contained in the tank, pool, or ditch from which they elect to drink. Villagers in most instances, even for the cleansing of their teeth and tongue, draw water from the village wells, but a few are not so particular, and resort to the use of tank water for that purpose. The idea of germs of disease clinging to their teeth, tongue, or palate is foreign to their nature. Those members of such communities who do not use the wells, but show a preference for tanks, are the chief sufferers during village epidemics of cholera.

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[1] See pp. 197, 198, of the Annual Report of the Sanitary Commissioners with the Government of India for the year 1892.

Some factors which may possibly increase the virulence of cholera epidemics, though not perhaps sufficient to cause the disease.—No rain has fallen in the town of Puri, and little or none in any part of the district since 28th November, the date on which the last epidemic outbreak stopped, or up to 5th February, a period of over seventy days, and, as far as it is possible to form an opinion, very similar results to those of the two previous years, 1893 and 1894, may be anticipated. At the present moment, and for some weeks back, roadside ditches have been completely dried up, while the water of wells and tanks have been at a very low level. In fact, some of the wells, twenty feet deep, contain only a few inches of water. Pilgrims have been coming and going, in unusually large numbers, from the remotest corners of India, and yet not a single case of cholera has occurred amongst them, either on the road, as far as I can discover, and, for a certainty, none have occurred amongst them in the town. It may be presumed that the germs which were introduced into the water of wells, tanks, and ditches during the epidemic in October and November of 1894 have died a natural death, or exist in a half-dead and half-alive state, ready to spring into activity under revivifying influences, which are not present at this season of the year. That the onset of the rains cannot be regarded as the revivifying agent is clear, because in the first six months of 1893 and 1894 respectively, the conditions of rainfall were, as already mentioned, diametrically opposite so far as amount and distribution were concerned, and yet cholera did not occur in either of those periods in epidemic form. In both years, however, cholera did occur in epidemic form during the Car Festival season, at which time roadside ditches contained rain-water. The amount of water in the ditches during 1893 was considerably greater than during 1894, and cholera was accompanied by a greater number of deaths in the latter year; but when the marked difference in the pilgrim population of the two years is considered, the death-rate was very considerably less. Neither pilgrims nor natives of any district defæcate directly into wells or tanks. As a matter of necessity, no choice being afforded them owing to custom, except in the alternative of carrying a sufficient amount of water in their brass utensils for the purpose, which, however, is an exception to the rule, natives defæcate wherever there is a handy supply of water for ablution purposes after the act of defæcation has been performed. In this way roadsides are literally converted into continuous latrines during rainy seasons, and the very nature of the roads affords the greatest possible facility to both solid and liquid excreta being washed into the water contained in the ditches, the contents of which pilgrims drink with as much relish as the purest water. The level of the subsoil water can only, in my opinion, when it rises to the extent of forming pools and filling ditches, form a source of danger. In some parts of the district the disease chiefly prevails during the filling up of tanks after a period of drought, which might be explained by the theory that the germs of the disease are washed out of the soil by the rise of the water level.

The objectionable habit of the natives of India of defæcating near or on the margins and sides of tanks and ditches is, I believe, the root of the evil, and I have already pointed out that, in those villages which depend entirely upon tanks for drinking and all domestic purposes, cholera is an abiding disease. It is a striking fact that in municipal towns where tanks and wells can be protected to a large extent against pollution, and where ditch water does not present a temptation to hot and thirsty pilgrims, the disease can be checked to a remarkable degree. It is still more striking, however, that where precautions have been taken to prevent pollution of tanks and wells in district villages, in first cases, by the wholesale destruction of soiled clothing and the disinfection of the first affected houses, the disease has been checked in the bud. Whatever may be said regarding the etiology of cholera in other districts of Bengal, I have come to the conclusion that in Puri it is due to neither more nor less than the introduction of fresh choleraic discharges, coupled perhaps with the excessive amount of ordinary human and animal refuse and mineral matter which either enter directly or are washed into the water contained in tanks, pools, and ditches, and that the intensity of epidemics of the disease depends upon the quantity of water contained in them, and the degree of concentration of such refuse. It cannot be denied that cholera discharges are contagious, but in face of the wide differences of opinion entertained by authorities on bacteriology as to whether the comma bacillus is the essential and specific cause of or a mere manifestation of the disease, it may not be considered unscientific to venture to suggest the possibility, pending further light being thrown on the subject, that errors in diet and the drinking of water fouled in the manner already described, apart from the discharges of cholera patients, may be sufficient to bring about a series of symptoms identical with those cases in which bacteriologists have proved the presence of such bacilli.

Treatment of Cholera.—Almost every remedy that has been recommended for the treatment of this disease has been tried and found of no avail, in so far as cholera hospitals in this district are concerned, due to the fact that the great majority of patients are pilgrims admitted in the last stage of the disease. The few recoveries which take place amongst this unfortunate class of people must, I'm afraid, be ascribed to good fortune, or their greater resistive powers, and not to medicines. It is only in cases which come under early notice, as amongst prisoners in jail, that any merit can reasonably be ascribed to drugs for general treatment; and it will be sufficient, therefore, to mention the treatment adopted and its results in cases which occurred in the Puri Jail during the past year. It may be at once stated that castor oil is excluded from the list of drugs employed, and that sulphuric acid and opium are invariably prescribed in the first stage of the disease.

On 25th July, Bhinoid Bhoi was received from court with ten other prisoners. One of their number was attacked with cholera at the court and died the same evening. Bhinoid Bhoi, on his return, had two loose, choleraic stools. A dose of sulphuric acid (25 minims) and of laudanum (10 minims) was administered, and sago diet prescribed. He had no more diarrhœa or other symptoms.

On 26th July, Daitara Oja, another of the company, had loose stools at 7·30 A.M., 9 A.M., 1 P.M., and 5 P.M. He was treated similarly. On the night of the 27th he had three motions, on the 28th two, on 29th none. He had no more symptoms after that.

On 28th, Bhaji Pandah was attacked, and put under the same treatment. Mustard poultices and stimulants were used in the course of the disease. He died on the 29th.

On 29th, Krupa Mullik, another of the same company, informed the Civil Hospital assistant at 11 A.M. that he had one loose stool at 8 A.M., and had pain in his belly. Was treated in the same way as the other three. Mustard plasters were applied to the abdomen, aromatic spirits of ammonia and ether were administered in the afternoon. On the 30th laudanum was stopped and sulphuric acid continued. The symptoms abated. On the 1st August he was out of danger, and ultimately recovered.

On 1st August, 1894, Dina Mullik, who had been attending his brother, had one loose stool at 5 A.M. The same treatment was adopted. He also recovered.

During the year 1894 eight prisoners suffered from cholera in Puri Jail, of whom five recovered, the death-rate being only 37·5 per cent. Of those who died, one had suffered for a whole day previous to his admission into jail, to which he was brought in a cart. Another, a female prisoner aged forty, died in the stage of reaction of pneumonia. Her state of health previous to the attack handicapped her chances of recovery considerably.

Cholera is, we believe, amenable to treatment in the earliest stage of the disease, and the success which has attended the administration of astringent remedies in the form of sulphuric acid and opium to begin with, and the careful avoidance of the latter in the more advanced stages of the disease, coupled with stimulants in the stage approaching collapse, the administration of nourishment at the proper time, in suitable amount and quality, warrants us in discarding elimination treatment.

GENERAL CONCLUSIONS DERIVED FROM THE FOREGOING OBSERVATIONS.

1. That pilgrimages and human intercommunication generally are most powerful factors in the dissemination of cholera.
2. That pilgrimages and cholera are almost inseparably connected, and that the disease confines itself for the most part to pilgrim routes.
3. That water is, undoubtedly, the chief vehicle through which the germs of the disease are introduced into the human system.
4. That the disease, if at all communicable through the atmosphere, can only be so communicated to an almost inappreciable extent, judging from the fact that the atmosphere, in badly ventilated sheds and hospitals, overcrowded with patients, during epidemics in Puri, has been excessively vitiated, and yet has not been sufficient to cause a general outbreak amongst attendants on the sick.
5. That when attendants on the sick are attacked the unfortunate occurrence must be ascribed to negligence with regard to cleanliness and disinfection of the hands before partaking of food.
6. That the dissemination of the disease can be prevented by suitable precautions.
7. That the period of incubation is, in the majority of cases, probably in all, well under three days, from the actual time of ingesting the virus.

8. That quarantine, during pilgrimages, is impracticable and dangerous; but that isolation is one of the most important preventive measures.

9. And, lastly, that the disease, in its incipient stage, is amenable to treatment in most instances.

CURRENT TOPICS.

ANNUAL MEETING OF THE GLASGOW AND WEST OF SCOTLAND MEDICAL ASSOCIATION ("GLASGOW MEDICAL JOURNAL").—The annual meeting was held in the Faculty Hall on Thursday, 30th January, 1896, at half-past four o'clock—the President, Dr. J. Crawford, Renton in the chair. The Treasurer's report showed a very satisfactory condition of the finances of the Association. The Editors' report alluded to the loss the *Journal* had sustained in the death of Dr. John Howie Carslaw, and stated that the General Business Committee had, in the name of the Association, conveyed its sympathy to Mrs. Carslaw. Both reports were adopted. Dr. T. K. Monro was appointed to the charge of the department of Abstracts from Current Medical Literature, and Dr. T. F. Tannahill to that of the Reports of the Medical Societies. The following Office-bearers for 1896 were unanimously elected:—

President, ...	DR. J. CRAWFORD RENTON.
Vice-Presidents, ...	DR. ALEXANDER ROBERTSON. DR. ALEXANDER MILLER.
Editors, ...	PROF. JOSEPH COATS. DR. JOHN LINDSAY STEVEN.
Treasurer, ...	DR. T. K. MONRO, 10 Clairmont Gardens.
Secretary, ...	DR. JOHN LINDSAY STEVEN, 34 Berkeley Terrace.

General Business Committee.

DR. GEORGE MARSHALL.
DR. J. N. MARSHALL (Rothesay).
DR. R. M. BUCHANAN.
DR. M'LACHLAN (Dumbarton).
DR. JOHN GLAISTER.
DR. C. O. HAWTHORNE.
DR. BARCLAY NESS.
DR. KENNEDY (Bearsden).

TUBERCULOSIS AND THE MUNICIPALITY.—By the time our March number is in the hands of our readers, all the medical practitioners of Glasgow will have been supplied with copies of Dr. J. B. Russell's Report on the Prevention of Tuberculosis, which was submitted to the Town Council's Committee on Health, and ordered to be printed on the 23rd December, 1895. The report is remarkable for its minuteness of detail, and for the practical, though moderate, suggestions which the writer of it offers as to the part the Municipality should play in the endeavour to prevent the spread of tuberculosis—which, so far as the sanitary aspect of the case is concerned, practically means consumption. The report is the outcome of the remit by the Health Committee to Dr. J. B. Russell of a Memorial presented to them by the Medico-Chirurgical Society of Glasgow on 25th January, 1892. In our issues for January and February for that year will be found full accounts of the discussion in the Medico-Chirurgical Society, which gave rise to this memorial and its presentation to the Health Committee. The recommendations of Dr. Russell, we have no doubt, will, if consistently carried out, have considerable effect in diminishing the death-rate from consumption. The chief of them are the education of the public as to the danger of tubercular sputa, the prevention of the sale of tuberculous meat and milk, the sleeping alone of patients suffering from phthisis, the provision of dryness, light, and space in the dwelling, and disinfection of the house after death from phthisis. Each and all of these must have a great effect, but we confess to having some sympathy with the more stringent measures recommended by some of those disciples of Koch, who, as Dr. Russell says, Out-Herod Herod in their practical application of the new doctrines of tuberculosis. Dr. Arnold Chaplin, whose experience, we think, has been obtained in the Victoria Park Hospital for Diseases of the Chest, London, is specially dealt with as one of the rampant reformers. With the enthusiasm of a young man, Dr. Chaplin has probably not taken into account all the difficulties involved in an attempt at complete sanitary control of tubercular phthisis, and possibly has not realised the magnitude of the change he proposes. At the same time, while we fully realise the difficulties, and regard Dr. Russell as right in the course he has taken, we think that theoretically, if not practically, there is not so much fault to be found with the propositions laid down by the young London physician. There is one disease which, from the point of view of infection, has always struck us as comparable in many ways to tuberculosis—it is leprosy. The only European country where leprosy still exists, to any extent, is Norway. For an exposition of the beneficial results, as regards leprosy, of isolation and notification in the last forty years, we would refer our readers to Hansen and Looft's recently published work, translated by Norman Walker.[1] There is no need for the cruelty and harshness of mediæval segregation, even in dealing with leprosy, as the Norwegian experience shows. We cannot help thinking that in the prevention of tuberculosis we have something to learn from the history, ancient and modern, of leprosy in Europe. If every case of expectorating phthisis were known to the sanitary authorities, the beneficial result as regards the public health would, in our opinion, be very great. We recognise, however, the tremendous difficulties in the way of notification, and we are grateful to Dr. Russell and the Health Committee for the readiness they have shown to do all in their power to arrest the plague of tubercle.

CONSUMPTION AND LIFE INSURANCE.—In connection with what we have just said as to Dr. Russell's report on the sanitary aspects of tuberculosis, it may not be out of place briefly to refer to an exhaustive report recently issued by the *Mutual Life Insurance Company, of New York*, on the influence of a consumptive family history on life insurance. The material used for the report consists of 22,085 cases, being the entire mortality for fifteen years, from 1879 to 1893. The number of cases with a consumptive family history was 1,994, and these have been compared with a nearly equal number of untainted cases at the beginning, middle, and end of the period specified (the years 1879, 1886, 1893), amounting to 2,706. From a comparison of these two classes "it is evident that a consumptive family record is of considerable value as indicating an increased liability to consumption in an applicant, and that the amount of this increased liability may be estimated at twenty per cent. This estimate holds good until the age of fifty years is reached, after which age no difference is apparent between the classes." A series of tables is also given, showing the influence of the degree of taint in the family history—*i.e.*, the number and relationship of the affected members. From this enquiry it is learnt that "the predisposition or tendency to consumption is rather a 'family' than an 'inherited' influence"—*i.e.*, "that consumption in a brother or sister is at least of equal importance as when it has occurred in a parent." In the next place the influence of body-weight, as representing the general condition, on the tendency to consumption in tainted and untainted lives is compared. In both classes it is found that those below the average weight are twice as liable to phthisis as those at or above the average. It follows, as far as the Company's experience has gone, that "the family history has influenced the consumption death-rate far less than has the personal condition, and that therefore it is a less valuable indication of an underlying phthisical predisposition." The practical conclusion of the report, which has been prepared by E. J. Marsh, M.D., one of the medical directors of the Company, is that if an applicant's weight does not come up to the average, and he gives a history of consumption in brothers, sisters, or parents, he is to be regarded as an unfavourable risk." If, on the contrary, he presents a robust appearance and is up to average weight as given in the Company's tables, "he may be accepted, notwithstanding any taint in the record of his family." One thing which strikes us in considering both Dr. Russell's and Dr. Marsh's reports is the conformity they present to the modern pathological doctrines of tuberculosis. It may perhaps appear rather strange to some of the older members of the profession to learn that a belief in the importance of heredity as a prime causal factor in the production of phthisis seems to be disappearing, not only from the laboratory of the experimental pathologist, but also from the bureau of the Sanitary Department and the office of the Insurance Company.

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[1] *Leprosy.* Bristol: John Wright & Co. 1892.

TRANSACTIONS OF THE ELEVENTH INTERNATIONAL MEDICAL CONGRESS.—The publication of the records of the great international meeting held at Rome in April, 1894, has at length been completed in six bulky volumes. In some respects the arrangements for the Roman Congress were defective, and many of the members were disappointed at the confusion and overcrowding which often prevailed. The volumes now before us, however, show that, whatever may have been the defects of the social and executive arrangements, the primary and, after all, the real object of the gathering, the publication of a vast amount of professional work, has on the whole been successfully accomplished. From the General Secretary's official return we learn that there were 6,366 members of the Congress and 2,268 "partecipanti" or guests, giving a total of 8,634 attending the meeting. Italy gave 3,230 members and 828 guests; Germany 796 members and 478 guests; Great Britain 445 members and 285 guests; and Austria and France come next in order with nearly equal numbers, about 430, including members and guests, to each nationality. Something like 1,500 communications were read and have been printed in the transactions—in Medicine 145; in Surgery 174; in Obstetrics and Gynæcology 110; and in Psychiatry 160, the large number of papers in the latter branch being a sufficient indication of its growing importance. The first volume of the six contains the record of the general sittings of the congress, and the addresses delivered thereat. The first of these on "Morgagni and the Anatomical Impulse" was delivered by Virchow, who was presented with a gold medal by the municipality of Forli, Morgagni's native city. Michael Foster spoke on the organisation of science, and Jacobi, of New York, delivered an address entitled "Non Nocere," well worth reading by all who are interested in the dangers of modern specialism, with particular reference to diphtheria and cranial operations for idiocy. We learn that the University, the Faculty of Physicians and Surgeons, and five Medical Societies of Glasgow were duly represented by delegates at the meeting.

Prof. William Macewen and Prof. Murdoch Cameron were Honorary Presidents of the sections of Surgery and Orthopædics and of Obstetrics and Gynæcology respectively. The following communications were made to the proceedings of the Congress by members of the Glasgow School. Prof. Macewen addressed the section of Surgery on pyogenic diseases of the brain, and demonstrated the mode of operating on the black board. In the section of Obstetrics and Gynæcology, Prof. Murdoch Cameron read a paper on Axis-traction Forceps; and to that of Pathology Dr. John Lindsay Steven made a communication, entitled " on Pancreatic Hæmorrhage and Necrosis and its association with Fat Necrosis," in which he described in detail two cases which had come under his observation in the Glasgow Royal Infirmary.

THE following is the list of successful candidates, in their order of merit, at the recent examination in London for commissions in the Medical Staff of Her Majesty's Army:—E. T. F. Birrell, A. H. Morris, S. A. Archer, E. W. W. Cochrane, M. Swably, A. J. Macdougall, G. B. Riddick, H. Hewetson, and R. W. Clements.

SALE OF THE LATE DR. GEORGE R. MATHER'S COLLECTION OF PICTURES.—A portion of this valuable collection was sold by public auction in Mr. Buchanan's gallery, Renfield Street, on the 25th ult. As the proceeds of the day's sale, £7,900 were realised, probably the largest sum ever obtained in one day at an art sale in Glasgow.

MEETINGS OF SOCIETIES.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1895-96.

MEETING III.—9TH DECEMBER, 1895.

DR. JAMES FINLAYSON *in the Chair.*

I.—CASE OF SLEEP PALSY OF THE ULNAR NERVE.

BY DR. R. M. BUCHANAN.

Dr. R. M. Buchanan showed a case of sleep palsy of the ulnar nerve.

II.—RESECTION OF BOWEL.

BY DR. NEWMAN.

Dr. David Newman showed, as a fresh specimen, a portion of intestine removed for the relief of acute intestinal obstruction, and also the resected bowel, which had been preserved from a *post-mortem* examination made that morning.

The patient, J. M'L., aged 71, was admitted into the Royal Infirmary on Tuesday, 3rd December, said to be suffering from stricture of the urethra. The patient was in his usual health until Monday, 2nd December, and passed urine quite naturally about 11 o'clock forenoon. Half an hour later a sudden pain seized him across the abdomen, but was most severe below the level of the umbilicus; two hours later the pain became more acute, and continued so till admission.

Previous to coming to the hospital he consulted two medical men, and they passed a catheter; but, failing to draw off any urine, came to the conclusion that the instrument had not reached the bladder, and that the patient was suffering from a stricture. On admission, the house surgeon attempted to introduce an instrument; but, failing to do so, Dr. Newman was asked to see the patient. On examination he found him very weak; the pulse could scarcely be felt; respiration was slow, and the temperature slightly subnormal. The patient complained of considerable pain in the region of the bladder, and the abdomen was slightly distended and tympanitic above the level of the umbilicus; below that level there was a less tympanitic note when first examined. But shortly thereafter, the note varied in tone, and became quite as clear there as in other parts parts of the abdomen. No distension of the bladder could be detected, and on passing a catheter no urine escaped, although the instrument was clearly within the cavity of the viscus. Dr. Newman came to the conclusion that the patient was either suffering from suppression of the urine or rupture of the bladder, although admittedly there were no evidences pointing to extravasation beyond pain and tympanitis. The patient said that his bowels were perfectly regular until Sunday night, but since then he has had no movement. The tongue was covered with white fur, and the patient complained very much of thirst. A large enema was given, but returned without fæces. This was repeated the following morning without any effect. On Wednesday the patient vomited slightly, the matter vomited suggesting, by its appearance, that it was feculent, although free from any distinctive odour. The patient's general condition was improved; but still no urine had been secreted. Dry cupping was ordered to be applied over both kidneys, and this was done in the afternoon. In the evening about 8 oz. of slightly purulent urine was passed. He was cupped again in the afternoon, and during the night and the following morning a considerable quantity of urine was secreted.

On the 5th December patient still complained of abdominal pain, but less severe than the day previous. The physical signs remained practically the same, but, if anything, the tympanitis was less marked; pulse considerably improved since admission; temperature slightly subnormal, and bowels still unmoved. In the evening distinct fæcal vomiting set in, and Dr. Newman saw the patient again at 5 o'clock P.M. in consultation with Dr. G. S. Middleton. After carefully reviewing all the facts, the conclusion come to was that the case was really one of intestinal obstruction, complicated by suppression of the urine. Considering the age of the patient, it was deemed advisable to administer another large enema, with the patient in the knee-elbow position; but should this fail in producing any effect, an exploratory incision should be made. There was no evidence as to the position of the obstruction, and no hernia could be discovered.

At 10 P.M. Dr. Newman, assisted by Mr. J. A. Adams and Dr. D. M'Kellar Dewar, performed abdominal section. On opening the peritoneum, the cavity was found to contain a considerable quantity of blood-stained fluid, and the lower portion of the bowel, which presented in the wound, was in a state of advanced inflammation; the serous surface was of a dark crimson colour, and at the junction of the jejunum and ileum a constricting bend was discovered, including a portion of almost gangrenous bowel. Two inches of the bowel was removed, along with a wedge-shaped portion of mesentery, and the divided segments were united by means of Murphy's buttons. The bowel above the constriction was found to be considerably distended, and the walls were greatly thickened from hypertrophy of the muscular coat. Below the constriction the bowel was almost empty, and the walls softened and atrophied, so much so that suture of the bowel was impossible. The mucous membrane of the bowel above the point of obstruction was distinctly gangrenous, but this change did not affect the other coats.

6th December.—The patient feels much better, the pulse is fairly good, but still there is some feculent vomiting. Nutrient enemata and meat suppositories were given, and also milk and brandy per rectum. Vomiting continued until 3 P.M., when it ceased, but, at the same time, the patient became more restless, and seemed weaker during the night of the 6th, and on the morning of the 7th. The patient became rapidly weaker, and died at 9 A.M. on the 7th.

At the *post-mortem* examination the serous surfaces of the divided bowel were found cemented by the recent adhesions, and the union was so complete that water, when passed into the bowel, was retained, even although the bowel had become considerably softened by *post-mortem* changes.

In this case the nature of the lesion of the bowel was greatly obscured by the circumstance that the patient was sent to the hospital as one of stricture of the urethra, associated with suppression of urine. The idea of stricture being present was at once eliminated, but still the kidneys failed to act for a considerable time after admission. As soon as vomiting became persistent, the patient was carefully questioned as to the condition of his bowels previous to the present attack, and he stated most emphatically that he had been perfectly regular in that respect; but after his death, his daughter, with whom he lived, said, that for ten or twelve years at least he suffered from occasional attacks of pain in the abdomen, for the relief of which he had been in the habit of taking laudanum. By the patient's statement we were to some extent misled, and for a time at least we considered that the vomiting might be due to uræmic poisoning, but when it became feculent, the true nature of the disease was clearly enough revealed, and as the patient was not in a state of marked collapse, Dr. Newman considered that it was a fair case for an exploratory incision. In many such cases the danger is in waiting too long with the hope that the symptoms may subside The facts of the case, as demonstrated by examination made on Thursday afternoon, showed that there was some formidable cause of intestinal obstruction, the exact nature of which could not be made known, nor the patient be relieved by anything short of an operation. In such cases the best rule to follow is to make a small inspection to begin with, and find out the condition of the contents of the abdomen. If there is obstruction at any point, it can usually be discovered, either by the appearance of the bowel itself, or by the finger of the operator. In this particular case, the stricture was easily detected, and relieved. As far as the use of Murphy's button is concerned, it may be said to be quite satisfactory, and moderately firm union was produced even within the limited period between the operation and the death of the patient (about thirty-six hours.)

The following are the notes of the *post-mortem* examination made by Dr. Charles Workman :—

The body is that of a well developed, but considerably emaciated old man. Left pupil somewhat dilated, the right medium. Rigor mortis passing off. Great discolouration of skin over abdomen. There is an operation wound extending from near the umbilicus to the pubis.

On laying open the abdomen, the intestines are found somewhat matted together, and the ileum is of a deep red colour. About the region of junction of jejunum and ileum the bowel is fastened together by a Murphy's button, where a wedge-shaped portion of mesentery appears to have been excised. The entire colon is collapsed and empty.

The duodenum and jejunum are distended with gas, the parts below the button being flaccid and empty.

On examining the rectum, it is found much narrowed about 4 inches above the anus, and this part is much congested.

The mucous membrane of the bladder is somewhat eroded, but the organ is otherwise healthy.

The thoracic organs present quite healthy appearances.

III.—LARGE FATTY TUMOUR.

BY DR. FLEMING.

Dr. Fleming showed a fatty tumour of large size. This tumour was interesting chiefly from its size, being 9 lb. in weight, and was removed from the back of the thigh of a woman aged 60 years. The duration of the growth was seven years. The diagnosis was uncertain until the removal of the tumour.

IV.—BRAIN AND HEART FROM A PATIENT WHO DURING LIFE HAD TACHYCARDIA.

By Dr. M'Vail.

Dr. Workman showed, for Dr. M'Vail, the brain and heart from a patient who during life had tachycardia, with cardiac symptoms, infarction of the lungs, and passive hyperæmia of the abdominal organs. The heart was fairly healthy. On examining the brain the left vertebral artery was found dilated, and before removal it stood out like an aneurysmal projection, and must in life have pressed on the anterior surface of the medulla. Did this condition give rise to the tachycardia?

Dr. Finlayson thought this case should be again referred to, in relation to the view that exophthalmic goitre might be due to a dilated vertebral artery.

V.—A PIECE OF METAL IN THE EYE FOR TWENTY YEARS.

By Dr. Meighan.

This is a very unusual case of a foreign body floating in the interior of an eye for twenty years without setting up sympathetic disturbance in the fellow eye, and, so far as I can ascertain, there is no similar case on record. The following is the history of the case:—

J. P., aged 31 years, spindle maker, states that when he was 11 years old he was asked by a blacksmith to hold a piece of cold steel on an anvil while he cut the steel with a chisel and hammer. In doing this a chip of metal struck him on the left eye, the sight of which was immediately lost. The pupil in a few days became white. At first there was a good deal of pain in the eye, but in course of a few days this passed off.

An ophthalmic surgeon saw him, and declared he had cataract, and wished to operate, but his parents thought it better to leave the eye alone. In the course of three months the cataract gradually cleared away, and he began to see a little with the eye, and was able to distinguish large objects.

The eye gave him no trouble, and the sight kept fairly good till six years ago, when he got a cold in his eyes. He had pain in his left eye and temple, the sight again got dim, and he noticed large blood-vessels on the eyeball. This continued for nearly two months, the pain gradually getting better, although the sight still kept dim. From the repeated attacks he has suffered he thought his eye was very sensitive to cold, but one day he noticed for the first time a small dark body, about one-eighth of an inch in diameter lying in the bottom of the anterior chamber of his left eye. It remained in this position for some weeks, and gave him great pain, and caused congestion of the eyeball. Some eserine lotion was applied, which relieved the pain. The recurrent attacks became less severe, and he noticed that the dark body would disappear for some days and then come into the anterior chamber again. The sight of the right eye has always been good.

Examination.—Right Eye: The sight is normal. *Left Eye:* The tension of the eye is increased, and the anterior ciliary vessels are tortuous and dilated (glaucomatous condition). Near the centre of the cornea and placed vertically is a small cicatrix of a wound over one-eighth of an inch in size. The pupil is oval-shaped vertically, and at the bottom of the anterior chamber a small dark body, about one-eighth of an inch in diameter, is seen, evidently a chip of metal.

A drawing of the eye showing the position of the chip of metal was shown to the members.

VI.—TUMOUR OF THE CORNEA—FIBROMA.

By Dr. Meighan.

Cases of fibromata of the cornea are very rare. Only a few of the ordinary text-books make mention of their existence, and describe them as being exceedingly rare, occurring as a flat growth of densely white appearance, involving the superficial portion of the cornea, over the whole of which it very slowly spreads. Some authors have a disbelief in their existence, except when found to grow from the conjunctiva at the corneal border.

In the case which I now bring forward, the growth was entirely confined to the cornea. The following is the history of the case:—

M. H., aged 50 years, was admitted 13th September, 1895. States that for the last two years she suffered from great pain in her right eye, and was almost blind on account of a whitish film growing on the front of her eye. The left eye had been operated on for staphyloma twelve years ago, leaving merely an atrophied ball.

The family history was good. She had had five children, all living, and never had any miscarriage. On examining her right eye, I found she could distinguish light and shade. The tension of the globe was slightly raised. The conjunctiva was congested, and had a few vessels in it. The peripheral part of the cornea was transparent for about 1 mm. in breadth all round its circumference, and there was a flat, smooth, nearly circular-shaped growth of a whitish colour adherent to the central part of its surface. The growth suggested the idea of a staphyloma of the cornea, and in viewing the eye in profile it gave the cornea a conical shape. It was attached along its edge, and was thickest in the centre of the cornea, and was partly covered by the upper eyelid. It was a little sensitive to touch, and seemed adherent to and covered by the corneal epithelium. It measured about 8 mm. in the horizontal diameter, 6 mm. in the vertical diameter, and 2 mm. in thickness at its thickest part. There was no marked inflammatory condition observable anywhere.

I removed the growth, dissecting it with great ease off the cornea, to which it had a very slender attachment. The cornea beneath was perfectly transparent, and appeared as though the epithelium had been dissected off. There was slight bleeding during the operation, showing that some vessels were in the tissue.

8th October, 1895.—Patient was dismissed. Cornea clear; able to see letters in No. 20 Jæger's test-types.

In the *Ophthalmological Transactions*, vol. x, a case is recorded by Dr. Benson, of corneal fibroma, which in the main corresponds to this case.

The tumour was handed to the pathologist, Dr. Leslie Buchanan, who has furnished the following report:—

When removed, the piece of tissue contracted very considerably, and, after hardening in chromic and acetic acid, measured only 6 mm. by 4 mm., being about 1½ to 2 mm. thick. The cut surface retracted in the centre, and the edges turned backwards.

The anterior surface of the mass is covered by epithelium, stratified as is the corneal epithelium, with which it was doubtless continuous.

Under a low power it is seen that the tissue mass is divided into two parts—an anterior, composed of dense, matted fibrous tissue, which forms nearly four-fifths of the mass, and a posterior, composed of tissue closely similar to the corneal tissue, and disposed in lamellæ.

There are no blood-vessels in the anterior part, but in the posterior part, and near its posterior surface, there are, lying between the lamellæ, several small vessels, which are accompanied by a few round cells.

From the epithelial covering there are several deeply penetrating processes sent into the fibrous anterior layer, and it is seen also that there are several cavities lined with (squamous) epithelium, which are probably sections of hollow processes.

Under a higher microscopic power it is found that the anterior part is composed of multipolar cells with small oval nuclei, and which send their processes in all directions amongst the fibrous tissue in which they are lying.

There are also seen many fine spiral fibres running perpendicular to the surface through the anterior layer—possibly yellow elastic fibres or non-medullated nerve fibres passing up to the surface.

There is no definite basement membrane lying under the epithelial layer, but the tissues seem to become somewhat modified as if tending towards such a formation.

There is a moderately sharp line between the anterior and posterior parts, but no sign of Bowman's membrane being present, as would doubtless be the case were the fibrous tissue a simple inflammatory deposit under the epithelial layer.

The posterior layer, consisting of some twenty lamellæ, is in all respects similar to a slightly infiltrated cornea. The lamellæ are slightly separated, and the protoplasmic matter is easily seen, in the form of nucleated cells, lying between them, and somewhat in excess of normal.

There is no sign, in this part either, of the presence of Bowman's layer.

There is no sign of the presence of any cells which might indicate a malignant nature, and it is probable that, had the tissue been purely inflammatory, some part of Bowman's elastic layer, which rarely totally disappears in such cases, would have been found.

It seems probable that the growth is of fibrous nature purely, in some manner derived from the corneal substance, and now growing from it.

Mr. H. E. Clark thought both cases highly interesting, the first case being remarkable for two things—first, the long duration of the condition without sympathetic ophthalmia being set up, and, secondly, the occurrence of glaucoma. The appearance in and disappearance from the anterior chamber of the foreign body was to be expected. The second case was an exceedingly rare one, and a similar case had never come under his notice. Under the microscope the tumour tissue, especially in the presence of branched protoplasmic processes, looks like corneal tissue, and the anterior elastic lamina (or so-called basement membrane) is absent. Normally, many corneas do not possess an anterior elastic lamina, *e.g.*, the sheep, but they have a basement membrane. In this case it is difficult to say that a basement membrane exists.

It would be interesting to know something respecting the condition of the eye which was previously treated.

Dr. Meighan, in reply to Mr. H. E. Clark, said, from the fact that the operation previously undertaken was as if for staphyloma, he concluded the condition was similar to that recorded of the eye recently treated.

VII.—MALIGNANT DISEASE OF THE KIDNEY.

By Prof. Joseph Coats.

Prof. Joseph Coats showed specimens illustrative of three cases of malignant disease of the kidney.

VIII.—CANCER OF THE KIDNEY.

By Dr. Newman.

Dr. David Newman showed specimens and drawings, and gave an account of cases of cancer of the kidney, which will be found as an original article at p. 179.

Dr. J. Lindsay Steven said it was not consonant with his experience to find malignant disease of the kidney associated with calculus. Renal cancer also was infrequent, and although he had often seen calculi impacted in the pelvis, he never found associated malignant disease. Then, with regard to the second case, the wide dissemination gave rise to doubt if the primary growth was in the kidney. In a recent case he found both lungs infiltrated with secondary deposits; the case at first was regarded as pneumonia; the primary tumour was in the stomach.

IX.—A CASE OF LARGE TUMOUR OF KIDNEY, REMOVED BY ABDOMINAL SECTION.[1]

By Dr. W. L. Reid.

28th May, 1895.—Mrs. A. W., aged 28, very slightly built and thin, but not anæmic.

Patient began to menstruate at 14, and was regular and normal as regards menstruation till pregnancy, two months after marriage, at 24½ years. Had one child naturally, and no miscarriages. Menstruation returned when her child was twelve months old, although she continued to nurse it until the fifteenth month. She has been quite regular since, her last period having been a week ago.

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[1] This tumour was shown at the meeting on 14th October, 1895, at which time a Committee was appointed to examine it and report.

Patient has always lived in Egypt, with the exception of two or three years, during which she was at school in Italy, and she has enjoyed good general health.

She now states that, immediately after her confinement, she noticed something in her abdomen which moved from one side to another when she turned in bed, but this may have been the uterus; at any rate, it was not until the last six months that any marked abdominal swelling showed itself, and it was only three months ago that she asked Dr. Morrison, of Alexandria, to examine it, he having attended at her confinement.

The abdomen is now pretty well filled by a hard lobulated tumour, about the size of a sixth month pregnancy, mostly on the right side, and neither freely movable nor tender on pressure. The cervix uteri is hypertrophic, patulous, and points towards the right side, while the sound, introduced to the depth of 3 inches, shows that the fundus is pressed towards the left. The latter is not freely movable, although no distinct connection can be traced between it and the tumour in the abdomen.

3rd October.—To-day, after an interval of four months, the tumour is found distinctly larger, and patient is beginning to suffer from disturbances of digestion apparently due to the pressure of the growth. It is now decided to attempt its removal, the diagnosis being, that it is either a fibroid of the right broad ligament or of the uterus, and growing between the layers of the broad ligament,

12th October.—To-day, with the assistance of Drs. Lawrence Oliphant and A. W. Russell, the abdomen was opened. As the tumour was covered by peritoneum, to which the small intestine was firmly adherent, the peritoneal covering was incised, and a process of enucleation begun. This was continued down into the pelvic cavity, and then over the left side of the tumour, when it was found that the pedicle, about the thickness of three fingers and very vascular, was on the right of the middle line and about the level of the last dorsal or first lumbar vertebra. It was transfixed, tied, and cut through with some difficulty owing to the size of the tumour. A brownish patch was observed on the cut surface of the stump of the pedicle, and on examining the tumour, this was found to be kidney tissue, the most of the organ being buried in the tumour. The piece of kidney was enucleated from the pedicle, the latter trimmed, and the surrounding parts restored to position. On examination, the uterus and ovaries were found normal and free in the pelvic cavity. The peritoneum was cleaned and the abdomen closed in the usual way, and, although the patient suffered much from shock for some hours after the operation, she made a good recovery, and intends returning to Egypt in a very short time.

The urine was examined three days before the operation, and was found normal. If it be assumed that the incarcerated kidney was doing its fair share of work, it is interesting to note that there was no apparent disturbance to the system from its sudden removal, the excretion of urine being just like that found after any severe operation—viz., small in quantity, and rather high in specific gravity, from lack of ingested fluid. Before the operation it was moderate in quantity, and the specific gravity 1011, while two days after it the specific gravity was 1030, and the quantity 25 ounces in the twenty-four hours. No albumen was found during any part of the convalescence.

The following is the report of the Committee appointed on 14th October, 1895, to examine a fresh specimen of tumour of the kidney then shown:—

The tumour is a dense, rounded, somewhat concavo-convex mass, measuring 20 cm. by 12 cm., and weighing 2,600 grammes. In the middle of the concave aspect, which is irregularly nodulated, lies the right kidney partly embedded. The kidney, which has a healthy appearance, is slightly flattened at its lower end, and twisted slightly on its long axis. A portion of kidney substance, measuring 4 cm. by 2·5 cm., has been separated from the upper end by an oblique incision. Viewed in position the organ appears as if merely overlapped by the tumour, but on dissection it is found to be firmly anchored. The upper and lower extremities and the anterior aspect are comparatively free, being attached to the tumour only by loose, easily-torn fibrous tissue. The outer limits of the kidney, on the other hand, for a length of 4 cm., are included in the mass of the growth, and from the lower posterior aspect the capsule is continued over the surface of the growth.

A transverse section through the tumour mass down to the kidney reveals a dense, white, fibrous looking growth, œdematous in the central parts. Several wedge-shaped processes of tumour tissue, one of which extends inwards to the pelvic surface, have replaced a considerable area (about the extent of two pyramids) of renal tissue. These wedge-shaped processes are continuous with the central part of the tumour, the sides of which overhang and partly grasp the kidney. The growth merges very gradually with the renal tissue, some of which is still visible between the wedge-shaped processes at their apices.

The suprarenal capsule is not present.

On microscopic examination the tumour tissue presents the characters of spindle-celled sarcoma, traversed by numerous bands of connective tissue, which in some places bears a resemblance to involuntary muscular fibre with an indistinct transverse or oblique striation. At the invading margin the interstitial tissue of the kidney appears to undergo great increase, separating the tubules widely, and gradually merging with the new growth. Remains of tubules are to be found at considerable depth in the sarcomatous tissue. The process of invasion is along moderately well marked lines, showing here and there small islands of round-celled tissue, which appear to form new centres of the growth. These round cells are found between the uriniferous tubules in considerable numbers, and where this infiltrating process has occurred the epithelium of the tubules is distinctly separated from its basement membrane, and the lumen of the tubule greatly reduced or obliterated. In the invading zone, where the Malpighian bodies have not become obliterated, their shrinkage is associated with nuclear proliferation, both in the glomerulus and its capsule. The obliterated Malpighian body appears as a glistening mass, differing markedly from the condition in cirrhosis of the kidney.

While a great part of the tumour is composed of round and spindle-celled tissue, at other parts the cellular elements are much less abundant, and the tumour presents the characters of a fibroma.

The Committee are of opinion that the tumour is of renal origin, beginning most probably in the interstitial tissue under the capsule, or in the walls of the subcapsular lymphatic spaces.

Dr. Newman said that he had been asked by Dr. Reid to join the Committee appointed by the Society to examine the specimen which was brought forward by him to-night. Dr. Newman had carefully examined the tumour, both with respect to its naked eye appearances and to its histological structure, and he fully concurred in the report brought forward by Dr. R. M. Buchanan. In reply to the words which fell from Professor Coats, he desired to say something in explanation of the position taken up by the Committee as to the seat of origin and mode of extension of the tumour.

Dr. Newman said that sarcomata of the kidney might extend in three different ways. First of all, the tumour might originate in the substance of the kidney, and ultimately come to infiltrate the whole organ, the normal constituents of the gland being completely replaced by the neoplasm. An example of this Dr. Newman showed to the Society.

More commonly, however, the growth remains more limited, and expands the kidney, so that the organ forms, as it were, a shell surrounding the new growth. Such a case is recorded by Abercrombie in the *Transactions of the Pathological Society of London*, vol. xxxi, p. 172. Again, instead of the kidney forming a capsule around the tumour, the tumour may include the kidney more or less within its substance.

The situation in which the tumour originates largely determines the relative position of the renal and tumour tissue. When the growth starts from the subcapsular lymphatic spaces, or rather from the connective tissue forming these spaces, the growth is covered by the fibrous capsule of the kidney (as in Dr. Reid's case), and spreads around the organ very much in the way described in the Committee's report. This mode of extension of sarcoma is frequently seen in other organs, where the organ may be completely enveloped in sarcomatous tissue without the parenchyma being infiltrated by the growth.

Again, when the neoplasm starts at the hilus of the kidney or in the pelvis of the kidney, the renal tissue may become distended, so as to form a complete capsule of kidney tissue. In Dr. Reid's case the tumour clearly originated in the extreme cortex, or immediately underneath the capsule; it then spread so as to surround two-thirds of the kidney, while even until the end only a very small tract of the renal tissue became invaded by the tumour.

Dr. Newman remarked, in connection with the diagnosis of malignant disease of the kidney, that in many instances the true nature of the growth had been determined only after the operation. When the tumour becomes very large in size, the distinguishing features of its renal origin become less apparent, and the great difficulties which one has to contend with will be readily appreciated when it is known that experienced and careful surgeons, such as Czerny, Walcott, Thornton, Cullingworth, Hueter, Claus, Peaslie, Thomas, and others have excised tumours of the kidney, believing the swelling to be due to such conditions as disease of the liver or ovaries, hydatid tumours of the spleen, hydronephrosis, pyonephrosis, &c.

REVIEWS.

Diseases of the Joints and Spine. By HOWARD MARSH, F.R.C.S. New and revised edition, with 79 illustrations. London: Cassell & Co., Ltd.

To the student of medical literature it is most refreshing to come across a book like this. The printing is so beautiful and accurate, the style so lucid, the arrangement of matter so orderly, and the descriptions so comprehensive, that the most fastidious reader ought to be pleased. The first edition of the work appeared in 1886, so that the profession have had abundant opportunity of judging Mr. Marsh, whom they also know as the editor of some of the most delightful writings of his master, Sir James Paget. Indeed, not a few of the designations employed, doctrines taught, and even headings of chapters in this work recall to our memory the fascinating *Clinical Lectures and Essays.*

In the present volume, the diseases of joints are studied from the points of view of pathology and medicine, as well as of surgery, so that the physician and pathologist, and not only the surgeon, will find that Mr. Marsh can interest and instruct. The teaching is full of encouragement throughout, and this is one of its many pleasing features. Surgery has made huge strides in recent years, and the mortality of certain diseases of joints has been enormously reduced by improved methods of treatment; whilst the suffering entailed upon patients who come under judicious treatment at an early stage of the disease is quite trifling in comparison with what it was not long ago. The chapters dealing with excision of joints and with hip disease might be specially mentioned in relation to this aspect of the subject. But on the question of relative merit, we have no inclination to single out any one part of a work, so uniformly good, as better than another; we simply commend it in its entirety to the most favourable consideration of medical men.

A Practical Treatise on Diphtheria and its Successful Treatment, by BROWNLOW R. MARTIN, A.B., M.B. (Dublin). Second Edition. London: Baillière, Tindall & Cox. 1895.

THE mortality from diphtheria is so high that one gladly would know of any drug which will in any way lessen it. Dr. Martin claims this merit for sulphite of magnesium.

He says on page 56:—"As far as I can calculate, I have attended more than 150 cases by this method in which membrane was present, and probably about 100 more which were undoubtedly septic. Beyond this I am unable to state definitely, but as all without exception recovered, the result as regards the percentage mortality differeth not."

Sulphur in some form or other, as every one knows, has been used for years and years in the treatment of diphtheria, but we have never heard of a record such as this—250 cases and no death.

The magnesium sulphite is not only applied locally to the fauces, but it is also given internally so as to "saturate the system with pure sulphurous acid." One can understand the reason for the local application, but why saturate the system with a drug which is not claimed to act as an antidote to the diphtheria toxin, but only acts on the bacillus?

The book also contains an account of the symptoms, etiology, diagnosis, &c., of diphtheria. In treating of the theory of the local action of the bacillus and the systemic action of its poison, the author would seem to have us believe that it was he who evolved this idea.

We think Dr. Martin would have been better to have confined the scope of his book entirely to the treatment of diphtheria.

A Handbook of Diseases of the Nose and Pharynx, by JAMES B. BALL, M.D. (Lond.), M.R.C.P. London: Baillière, Tindall & Cox.

IN the first edition, which was published by Mr. H. K. Lewis, the author confined his attention to the nose and naso-pharynx. In this, the second edition, he has added to the size of the book considerably by including some of the diseases of the pharynx. It is eminently a practical treatise, and though written by a professed physician, the operative measures recommended are sound and clearly described.

The book is distinctly what it professes to be—a guide to the diagnosis and treatment of those diseases of the nose and naso-pharynx with which the practitioner and senior student are most frequently called upon to deal, and as such it can be heartily recommended.

Clinical Illustrations of the Diseases of the Fallopian Tubes and of Tubal Gestation, by CHARLES J. CULLINGWORTH, M.D. London: Rivington, Percival & Co. 1895.

DR. CULLINGWORTH has enriched both the pathology and surgery of the Fallopian tubes by the publication of this work.

The book consists of fourteen plates, seven coloured and seven uncoloured, and seventy-five pages of printed matter. In the preface, Dr. Cullingworth states that the coloured drawings were made while the parts were still fresh, "indeed, in most cases the specimens were handed over to the artist immediately after removal." The uncoloured ones are chiefly from specimens which had been hardened in spirit. All the plates are from specimens removed by the author in the course of his operative work. The text consists of the clinical histories of the cases; an indication of the operative procedure employed; and a description of the plates.

As a frontispiece, there is a drawing of the normal uterus and tubes, as Dr. Cullingworth is of opinion that those given elsewhere are all more or less unsatisfactory, being too diagramatic. We agree with him, but are of opinion that the one depicted here is not free from the same accusation, the ovarian ligaments being much longer than normal, and the uterus much more sharply defined than when seen in the subject.

The first plate shows specimens from two cases of hydrosalpinx; they are, especially Fig. 1, exceedingly well coloured. The next six plates are devoted to purulent salpingitis, the most of the specimens being removed by operation from cases of gonorrhœal salpingitis. Fig. 4, Plate II, shows a very good specimen of tuberculosis of the Fallopian tubes. In it the tube is seen to be enlarged, sacculated, and tortuous, with numerous miliary tubercles on its peritoneal covering and on the mesosalpinx.

Plate VIII is well worthy of careful study. It represents a Fallopian tube removed by operation, the distal extremity of which is distended into a large cyst. The less dilated proximal portion is much thickened and elongated, and arches over the other portions. The chief interest in this specimen is that it shows a pyosalpynx simulating a tubo-ovarian cyst. The ovary, however, we are told in the text, was quite healthy, and lay in front of the diseased tube. Plates IX and X are coloured, and represent cases of hæmatosalpynx. In none of these was there any evidence of an ovum, yet from the clinical and other facts, Dr. Cullingworth considers them to be cases of early tubal gestation with apoplexy of the ovum. Plate XI is uncoloured, and consists of three figures. Fig. 1 shows a very interesting and unusual condition in which a clot had formed in a pouch of the Fallopian tube, the aperture between the pouch and the lumen of the tube having subsequently become closed. Fig. 2 shows an unruptured tubal gestation with apoplexy of the ovum. A longitudinal section of this is shown in colour in Plate XII. Fig. 3 shows a clot and ovum from a case of complete tubal abortion. The drawing represents a blood-clot with an ovum in its left corner. Plate XIII shows a specimen of ruptured tubal gestation.

Plate XIV represents a case of primary carcinoma of the Fallopian tubes. It is a most interesting specimen on account of the rarity of primary cancer of the Fallopian tubes. The patient died a year after the operation from secondary infection, but, unfortunately, there was no *post-mortem* examination made.

The plates, without exception, are very good, and the colouring is excellent, I, VI, and XII being, we consider, masterpieces. The descriptions and clinical histories are full and clear, and the printing and general get-up of the book are of the highest order. In a word, we have nothing but praise to bestow on this work.

Midwifery. Parts I and II. Catechism Series. Edinburgh: E. & S. Livingstone. 1895.

As a digest of the present day teachings in midwifery these volumes are well up to date, and the student wishing to rapidly revise the subject for examination purposes will find them useful. The book is simply what it professes to be—a "coach" for midwifery examinations.

We would only say further that we cannot but commend the modesty that prompted the author to withhold the appearance of his name from the title page.

Transactions of the Edinburgh Obstetrical Society. Vol. XX. Session 1894-95. Edinburgh: Oliver & Boyd. 1895.

THE twentieth volume of the *Transactions of the Edinburgh Obstetrical Society* contains several papers of interest. Besides the purely obstetrical and gynæcological papers there are two on heredity, one by Dr. Freeland Barbour, in which the theories of Darwin, Weismann, Galton, and Brooks are discussed; the other is by Dr. J. W. Ballantyne, and deals with heredity and antenatal pathology from the Hippocratic view. Light literature is also represented by two papers—one "On a Delivery-pan in use at the present time in Spain," by Professor A. R. Simpson, and another on the "Biddenden Maids," by Dr. J. W. Ballantyne.

The more important among the obstetrical communications are the following:—A case with symptoms simulating hysteria in pregnancy, going on to apparent dementia. Death shortly after delivery, with brain lesions found *post-mortem.* The child was still-born, and showed contractions of upper and lower limbs. This case was communicated by Dr. Freeland Barbour. Dr. Halliday Croom has a very interesting paper on two cases of extra-uterine gestation, operated on, after rupture, at the fourth month. In the first case there was neither fœtus nor cord, but only placental tissue; in the second a three and a half months' fœtus. Both cases were treated by stitching the sac to the abdominal wall and packing with iodoform gauze. Dr. Barbour communicates a long and valuable paper on the recent frozen sections in their bearing on the mechanism of labour and the third stage. Dr. Buist has an important paper on chorea gravidarum, in which he describes six cases, and gives a table of all the published cases—226 in number.

The most interesting paper amongst the gynæcological communications is by Dr. Emilio Curatulo, on the influence of the removal of the ovaries on metabolism, with special reference to osteo-malacia. He found that, in bitches, after the removal of the ovaries, there was a marked diminution in the quantity of phosphoric anhydride discharged in the urine. He believes this to be due to a diminished oxidation of phosphorus existing in an organic form in the tissues, which being stored by the system, and combining with calcium and magnesium, would accumulate in the bones as phosphates. The ovaries, by their "internal secretion," introduce into the blood a product capable of facilitating the oxidation of the phosphoric organic substances which go to form the salts of the bones; therefore, when these glands are removed, these substances are retained, and go to build up a healthy skeleton.

The volume also contains the Report of the Edinburgh Maternity Hospital, and a discussion on the vexed question, "Should Midwives be Registered in Scotland?"

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

NERVOUS DISEASES AND INSANITY.

By Dr. R. S. STEWART.

Myxœdematous Idiocy treated by Thyroid Ingestion. By Bourneville (*Archives de Neurologie*, January, 1896).—The symptoms due to the treatment succeed each other as follows:—Disappearance of the swelling of the eyelids, loss of flesh, elevation of temperature, trembling, profuse sweats replacing the habitual dryness of the skin, rapidity of heart's action, vomiting, excitement, diminution of the volume of the tongue and of the violet colour of the lips, more rapid growth of the nails, disappearance of crusts from the scalp, desquamation of the hands and feet which lose their pachydermic characters, increasing natural colour of the skin, diarrhœa in place of constipation. All the movements are freer, prehension is less slow, walking lighter and quicker. The height is increased, and the sensibility to cold diminishes. Intellectually, excitement is noted, fits of temper replacing torpor, and there is more spontaneity. The hebetude disappears and the physiognomy is more alert and more expressive, and the aptitude for school work increases.

The Commencement of Spinal Degenerations. By Klippel (*Archives de Neurologie*, January, 1896).—This observer finds that the lesion, which ultimately manifests itself as sclerosis, invariably begins at the centre of the nerve tube where the myeline loses its concentric circles, these being still present at the periphery. It begins, therefore, so far as the myeline is concerned, around the axis cylinder itself. With low magnifying powers the nerve tube appears remarkably increased in volume (inflammatory œdema). This is not in reality a true hypertrophy, but is a tumefaction, the first stage of a lesion essentially destructive. With higher powers the myeline is observed to become hyaline and lose its normal concentric circles. Sometimes it is transformed into very fine globules which give to the central part a granular aspect and a deeper tint on staining.

But the myeline is not alone attacked, for by the time these lesions are observable the axis cylinder itself is found affected. This is in conformity with what one knows of the nutrition of the nerve tube taken as a whole. The axis cylinder cannot become the seat of a serious affection without the myeline in its turn becoming altered reciprocally. What compels one to admit that the lesion is primarily of the axis cylinder is the fact already mentioned, viz., that it is precisely in the neighbourhood of this latter that the degenerative lesion of the myeline commences, the central part being already liquefied and transformed into globules while the periphery still presents normal characters.

The axis cylinder appears hypertrophied and presents flexuosities, and is so contorted that in different sections it takes the form of a comma, spiral, circle, figure of eight, or *s* ilatic. The most altered points show a granular breaking-up of the axis, the last stage of the lesion before complete absorption. In general, the lesion is constituted by a pseudo-hypertrophic swelling of the whole nerve tube, by a disintegration of the myeline bordering on the axis, and by contortion and molecular disintegration of the latter. The fact that, with all these changes in evidence, there does not exist the slightest alteration of the vessels or neuroglia, points to the conclusion that the lesion commences in the nerve element itself. These lesions have been found in cases of tabes, degeneration secondary to cerebral hæmorrhage, and in the combined spinal sclerosis which occurs in general paralysis and in other forms of spinal diseases, acute and chronic.

Mental Symptoms occurring in Bodily Disease. By Reynolds (*Journal of Mental Science*, January, 1894).—The following conclusions are arrived at:—It is a comparatively rare occurrence for actual insanity to develop during the course of bodily disease. In general hospitals mental disease most commonly occurs after fevers, poisons, injuries and operations, and heart disease, and perhaps in this order of frequency. In the early stages of fevers and after injuries and operations, mania is the common form of insanity, but in other conditions depression is more common, though the commonest form is an insanity with marked delusions of persecution, often associated with auditory hallucinations, such as one sees in phthisis and heart disease, and after typhoid fever. There is no special form of insanity connected with special bodily disease with the exception of the condition which accompanies alcoholic paralysis, and which is marked by a pronounced failure of memory for time and also for place. Insanity occurs with unusual frequency in bodily diseases associated with peripheral neuritis, as in poisoning by alcohol, carbon monoxide, carbon bisulphide, and several other diseases. Where the cause is not continuous the mental symptoms in the great majority of cases disappear. In heart cases and phthisis they may disappear and reappear from time to time, and in some cases, such as renal disease, they are permanent.

Mental Changes in Graves' Disease. By Maude (*Journal of Mental Science*, January 1896).—From an analysis of twenty cases this writer finds that extreme restlessness, resembling that which sometimes accompanies subacute mania and neurasthenia, is a very frequent accompaniment, and vertigo and visual and auditory hallucinations are not uncommon. The sufferers from this affection are easily startled, become irritable, untruthful, suspicious, intolerant of contradiction, and the memory fails; but the most distinctive mental change is "chorea of ideas"—an inability to think consecutively. This condition of mental excitability is contrasted with the apathy and torpor of myxœdema, and the opinion is hazarded that, as in the latter there is deficiency, so in the former there is an overplus, of some material which acts as a stimulus to nerve structures.

Diabetes and Insanity. By Bond (*Journal of Mental Science*, January, 1896).—A record of seventeen cases. A parallelism was observed between the presence and amount of glycosuria on the one hand, and the presence and acuteness of the mental symptoms on the other. In the acute cases the prevailing feature was melancholia, with a considerable amount of mental confusion, in some amounting to marked amnesia. One half of the cases became insane at or about the climacteric.

The Surgical Treatment of Idiocy. By Shuttleworth (*Journal of Mental Science*, January, 1896).—Craniectomy is but rarely (if ever) of permanent benefit in cases of ordinary congenital microcephalus, in which the original defect is in the brain, not in the bone. It may possibly do good where premature synostosis is the result of osseous hypertrophy from constitutional causes. In recent traumatic cases, where epileptic or irritative symptoms arise from pressure, cranial operations are indicated, as also they are in cases of mental impairment with hemiplegia or athetosis occurring from intracranial hæmorrhage during parturition where the cerebral defect arises not from porencephalus, but from compression by a clot or false membrane. In cases of mental impairment from effusion in hydrocephalus and in tubercular meningitis tapping may be resorted to with advantage. In brain hypertrophy trephining with section of the dura mater may be beneficial in relieving undue pressure, and temporary benefit has followed in a case of imbecility from inherited syphilis.

Craniectomy, with the After-History of Two Cases. By Telford-Smith (*Journal of Mental Science*, January, 1896).—From the consideration of the results obtained in the two cases here recorded, and of the 200 cases recorded since 1890, the opinion is expressed that the weight of evidence so far is against the operation of craniectomy, as judged not only from the facts learned from an examination of microcephalic brains, microcephalic skulls, and of skulls in which the operation has been performed, but also as judged from the actual mental and physical results obtained in even those cases where all the circumstances were favourable.

Insanity is Decreasing. By Chapman (*Journal of Mental Science*, January, 1896).—In Dr. Chapman's opinion the figure representing the annual production of insanity, when corrected for increase of population, is a figure not only fluctuating, but also diminishing, *pari passu*, with the annual death rate. The average man is now less liable to insanity than he was thirty years ago to some degree not exceeding 30 per cent. He is, however, more liable to be sent to an asylum, because he will now be sent for reasons that would not have led to that result thirty years ago.

DISEASES OF THE EYE.

By FREELAND FERGUS, M.D.

New Theory of Colour Blindness. By Georges Darzens.—Starting with the Young-Helmholtz theory, Darzens asks why is it that a wave 0μ ·620 will strongly excite one fibre and scarcely the others.

The theory of colour preceptions which he gives is the following:—A luminous ray after traversing the different layers of the retina under ordinary circumstances reaches the pigmentary layer of this membrane, where it is reflected and interferes with the incident ray. It follows from this that there should be in front of the pigmentary layer, and consequently in the thickness of the retina itself, a system of stationary waves distant by $\frac{\lambda}{2}$, as in the experiments of O. Wiener or in those of M. Lippmann on the photography of colours. It is, moreover, probable that these stationary waves must only exist for a thin layer on account of the absorption by the medium which constitutes the retina.

Let us remark in passing that this minor action of the pigmentary layer undoubtedly exists in the ox, in which it depends on the tapetum. It is precisely these stationary waves which excite the nerve terminations of the optic nerve. These terminations are of two kinds—viz., the rods and the cones.

The rods are made up of cylindrical fibres parallel to each other. It is supposed that these stationary waves will excite them all whatever be the length of their position—that is to say, whatever be the λ of the incident light; from this it must be concluded that the rods will transmit to the brain the notion of light without distinction of colour. We know that the brain always refers stimuli to the periphery whatever be the point at which the nerve is excited.

The cones, on the other hand, are made up of fibres parallel to each other, but of unequal length. They will therefore be differently stimulated according to the value of λ: they thus furnish the brain with sensations of colour.

These two conclusions are manifestly verified by experience.

It is acknowledged that all the colours are only perceived at the yellow spot, and that it is precisely there that the cones are found, the rods being specially numerous towards the equator of the retina, where we only have the sensation of light apart from the notion of colour.

Moreover, nocturnal animals, which do not distinguish colours, have no cones, whilst the retinas of such birds as feed on coloured insects are rich in cones.

Lastly, if this theory be true, whenever the pigmentary layer of the retina is interfered with, as in senility and disease, there ought to be a somewhat comparable diminution of vision (achromatopsia). This hypothesis seems to be confirmed by experience.

This new theory can also be made to agree with that of Young-Helmholtz. It suffices to admit that the fibres comprising the cone form three groups which are connected with three centres of different perceptions. Moreover, it affords a reasonable explanation why the wave length, which excites one of these groups, acts only feebly on the two others. It explains also this curious arrangement of the retina, in which the perceptive elements of the retina (rods and cones) are placed in the deepest layer of the retina, turned as it were from the side of the pigment layer, a circumstance which has hitherto been unexplained.

It is remarkable thus to find that the method adopted by the eye to estimate wave lengths of light is perfectly similar to the methods hitherto employed by physicists.

This theory seems to satisfy the problem, for it connects the perception of colours to the appreciation of a wave length λ which has a size compatible with the dimensions of the anatomical elements of the retina. Moreover, it seems likely to throw much light on some of the peculiarities of the eye.

Only to mention one example, I would remark that, in the study of achromatism of the eye, the retina must no longer be considered as a screen similar to those of the laboratory, but rather as a screen which perceives different colours in different zones.

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ORIGINAL ARTICLES.

HISTORICAL SKETCH OF GYNÆCOLOGY DURING THE LAST FIFTY YEARS.

By SIR JOHN WILLIAMS, Bart.[1]

Gentlemen,—The esteem of his brethren is the greatest prize within the reach of any member of a profession, and this is especially the case in the profession to which we belong. To win such esteem is the highest and healthiest ambition of every member of it. I would, therefore, express my gratitude for, and the deep sense I have of the honour which you have done me by electing me your honorary president for this year. I appreciate this honour all the more, inasmuch as this Society is so largely composed of graduates of the old university of which I was once a student. I thank you also for giving me an opportunity to meet you and to address you, and for the great consideration you have shown me by allowing me to select any evening convenient to myself for visiting Glasgow, and thus rendering my duty as honorary president as light and agreeable as it is honourable.

The work in which we are engaged is that of tilling comparatively new ground. Although midwifery has been for many years the most accurate of medical sciences, yet it is only within comparatively recent years that the diseases of women have been cultivated with that care and system which they demand. During those years the progress which has been made in this study has been one of the marvels of modern science. Although greater attention has been attracted by the progress which has taken place in gynæcology than by that in midwifery, yet, the advances which have been made in midwifery, if not of so striking a character, are, without doubt, not less real and important, nor less beneficial in their consequences. The most showy is not always the best: the leaden casket has been found to hold the beauty of truth while the golden enclosed the skeleton-error.

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[1] Being his Address as Honorary President of the Glasgow Obstetrical and Gynæcological Society, delivered on 26th February, 1896.

For the comparatively more rapid progress of gynæcology there are several reasons; but the chief of them appears to be that midwifery had been largely and accurately studied, and many of its great problems solved, before the diseases of women had attracted particular attention; and, consequently, these diseases proved to be a new field for work, in which name and fame could be rapidly acquired. There are many who have been engaged in this field during the last half century, who have written their names on the roll of fame, who will be memorable so long as medicine is studied. I am not going to enumerate their triumphs: it has been done from time to time, and will often be done again—and rightly—as an example and a stimulus. Great deeds should frequently be recounted.

Until about fifty years ago, the study of the diseases of women had engaged but little attention. The constitutional origin of local diseases—a theory which had held sway from the time of John Hunter—was held sufficient to account for the disorders of the pelvic organs. Before this time, local investigation of the pelvis was conducted but rarely, and the means at the command of our predecessors for conducting such investigations were limited to digital examination, and the examination was, therefore, of a very incomplete and imperfect character. Little was known of local diseases of the pelvic organs, and the diseases of women were classified with those which gave rise to discharges of transparent mucous, white mucous, watery, purulent, and sanguineous character.

Certain diseases were recognised, such as procidentia, cystocele, rectocele, carcinoma, cauliflower excrescence, corroding ulcer, polypus, and fibroid; but inflammation of the uterus and its surroundings was almost unknown. About this time the speculum—an instrument which had been discovered (or rediscovered, if you like) towards the beginning of the century —was introduced into use. This added a new method for the physical investigation of the pelvis, brought a new means of acquiring knowledge, and a new field for research by ocular examination. By means of it conditions of the vagina and cervix were discovered and demonstrated which it was not possible to discover without it—whatever may be the case now—conditions unsuspected, and which could not have been suspected until brought within the range of vision. This made such an impression upon many physicians that they unduly exalted the speculum as an instrument of clinical investigation, placed an unreasonable value upon it, and some even went so far as to constitute themselves the "apostles of the speculum." The discovery of the speculum, besides adding directly to our knowledge and increasing our field of research, did what is much more. It gave a new impulse to the study of the diseases of women, which has gradually increased in force down to this day. Yet the speculum showed but little. It exposed the cervix, and brought into view certain changes in it, together with the state of the vaginal walls; and the important fact, which was not known previously, that discharges which were supposed to come from the vagina came, in many instances, from the uterine canal. Certain peculiar states of the cervix, and especially of the os uteri, unsuspected before, and which were of frequent occurrence, were discovered by means of the speculum, and were regarded as of an inflammatory nature; and to these conditions an importance was attributed which made them for a time the key to uterine pathology—an importance which becomes intelligible to us only when we bear in mind that the field of physical exploration of the pelvis open to the physicians of that time was confined to the vagina and the cervix uteri. This condition of the cervix uteri, which proved of such importance for many years afterwards, for to it were attributed almost all the sufferings of women, was believed to be inflammation and ulceration.

A distinguished writer and supporter of this theory said:— "Inflammation of the body of the uterus in the unimpregnated state is, in truth, a rare disease; but inflammation of the neck of the uterus, on the contrary, is an exceedingly common one —so common, indeed, that the very great majority of the females who apply for relief when labouring under uterine symptoms, physical or functional, will be found, on careful examination, to be suffering from its existence. Leucorrhœa, dysmenorrhœa, menorrhagia, irritable uterus, prolapsus, &c.,

are generally studied independently of any such origin; but, in reality, in nineteen cases out of twenty, when confirmed, they are the immediate result of inflammatory disease of the cervix, and only to be effectually treated by attacking the primary disease to which they owe their existence. Leucorrhœa, more especially when chronic and persisting during the entire interval of menstruation, is nearly always the result of inflammation of the uterine neck; but a large proportion of generally-reputed functional diseases of the uterus will also be found, if submitted to severe scrutiny, assignable to the same cause. Most of the intractable cases of dysmenorrhœa, menorrhagia, irritable uterus, and amenorrhœa that are met with in practice are the result of local inflammation. . . . Irritable uterus is merely another name for inflammation of the cervix uteri."

It is neither unimportant nor is it uninteresting to glance at the supposed causes of inflammation of the cervix as represented by the exponents of this theory. They are the following:—The anatomical predisposing causes of inflammation are the greater vascularity of the cervix as compared with the body—the vitality and highly developed structure of the mucous membrane covering the cervix and lining its cavity, and the great number of follicles that exist around the os and in the cavity of the cervix—disordered menstruation, married life, pregnancy and parturition, subinvolution, the menopause, and the extreme and lengthened uterine congestion which often accompanies the irregularities that occur in the menstrual secretion—may be considered as predisposing to inflammation of the cervix. This congested condition of the uterus will sometimes perpetuate itself for years after menstruation has finally ceased, more especially if the cervix is the seat of inflammatory disease.

The troubles and symptoms to which inflammation and ulceration of the cervix give rise are many and various. Discharges of all kinds—mucous, purulent, and sanguineous—hypertrophy, induration of the neck, and displacements of the cervix. The inflammation was believed to extend to the vagina and vulva, and to the rectum and bladder; pain in the lumbo-sacral, left ovarian, and hypogastric regions; irregularities of menstruation—metrorrhagia, menorrhagia, and amenorrhœa. It is the most frequent cause of sterility, and when impregnation takes place in spite of the existing inflammation, abortion is the frequent result—uterine inertia, destruction of all sexual feelings; disorders of digestion, nausea, vomiting, disorders of liver and kidneys, enlargements of the liver, jaundice, disorders of the heart and lungs, and even phthisis, anæmia, disorders of menstruation, nervous symptoms, headaches, mental depression, and not infrequently delirium or hallucinations, and even insanity; disorders of special senses, amaurosis, deafness, hyperæsthesia of the skin, insomnia, &c. It not infrequently ended in death—but almost always indirectly.

The condition called ulceration, to which these terrible results was attributed, I need not describe to you. Suffice it to say that it presented itself as a ring of finely granular surface and vivid red colour, surrounding the os uteri, partly or entirely, and occasionally small points of a similar character isolated on the vaginal surface of the cervix. These supposed ulcers were not depressed, but generally somewhat elevated, and did not present hard raised edges, as an ulcer does elsewhere. The adjacent parts of the cervix sometimes presented their natural pale rose colour, while at other times the whole surface was of a livelier red than natural. The os uteri was generally patulous, and the tissue of the cervix itself was sometimes harder, at other times softer, than normal. The cervix was said to be in some cases exquisitely tender, in others insensitive.

Although this view of uterine disease met with general acceptance in this country, there were some physicians who rebelled against it and consistently opposed it. They pointed out the many objections to it, and if they did not succeed in overthrowing it, they contributed at least to that result by pointing out its fallacies, and, at the same time, by more accurate reasoning on the data in their possession, arrived at conclusions which were generally rejected by their contemporaries, but have been accepted by their successors. It was shown that the anatomical and physiological character of the cervix described by the advocates of the ulceration theory was incorrect; that the cervix was not more vascular and of greater vitality than the body, as was maintained by the other side; that the assumed great vitality of the stratified mucous membrane covering the cervix had no foundation in fact; that far more serious diseases of the cervix—such as cancer—did not produce the series of symptoms which the trifling change called ulceration, erosion, abrasión, &c., were said to cause; that frequently injuries were caused to the cervix, such as cutting, burning, and amputation, and these did not give rise to any serious trouble. They showed, indeed, that the cervix uteri was a part of the body the most tolerant of injuries; that the symptoms ordinarily attributed to ulceration of the cervix were met with as often independently of this condition as in connection with it; that the local treatment of the condition was not the real means of the cure, but the general treatment, baths, rest, &c., which generally accompanied it. The overthrow of the theory was not sudden; it took place gradually, and was replaced by another.

The exact nature of the changes in the cervix, which were included under the terms inflammation and ulceration, have been explained, however, only recently, when it was pointed out that they were of three kinds:—(1) Inflammatory or congestive condition of the mucous membrane lining the cervix, and of its substance; (2) laceration of the cervix, giving rise to eversion of the lips; (3) hypertrophy of the glands of the cervix, and a growth of them outwards and downwards into the substance of the cervix, and on to its vaginal surface.

About this time the late Sir James Simpson discovered the uterine sound, and its introduction into use appears to have contributed, in a marked degree, to the overthrow of the theory of uterine diseases which we have been considering, and to have helped on the development of another. This instrument, discovered in the forties, became, after a time, one the use of which in diagnosis constituted a routine practice. It enlarged our means of investigation by bringing the interior of the uterus within our purview. It contributed undoubtedly to the development of a new theory of uterine disease called the Mechanical. It was frequently found that the uterine sound could not be made to pass through the inner orifice, or could be made to pass only with considerable difficulty, and from this it was inferred that the inner orifice was frequently narrowed or contracted. Whether this difficulty in the introduction of the sound arose from narrowing of the canal to such a degree that its calibre was such as not to permit the passage of the sound, or whether it was due to the point of the instrument being incorrectly directed towards the inner orifice, and consequently becoming hitched in one of the folds of the mucous membrane of the cervix was hardly considered; the difficulty was attributed not to want of skill in the use of the instrument, but to want of calibre in the canal. Now, however, it may safely be asserted that, in the infinite number of cases, the inner orifice itself presents no difficulty to the passage of the sound when properly directed. Indeed, cases in which stricture of the inner orifice exists are so rare that many have never met with one. And it may further be asserted that when the point of the sound has once passed the inner orifice, there is no difficulty in its further passage or in its withdrawal. However this may be, it became a generally accepted axiom that narrowing or stricture of the cervical canal was of frequent occurrence, and was a common cause of many and various sufferings. Another argument in favour of stricture of the inner orifice in some cases was the behaviour of the uterus to the laminaria tent. In these cases, when a tent had been introduced and withdrawn after several hours, the part of the tent corresponding to the internal orifice remained contracted, while the parts above and below were swollen, and it was inferred that this was due to stricture. It was overlooked that if the tent could be introduced through the inner orifice, the constriction observed on its withdrawal could not be due to stricture; and that it was really due to greater resistance to pressure on the part of the tissues around the inner orifice, than on the part of those forming the cervix and body. In the course of time, however, a difference of opinion arose among those who believed in stricture of the uterine canal as to the seat of the abnormality. Some maintained that the inner orifice was the seat of narrowing, while others maintained that the seat of it was either only, or most frequently, at the external orifice. The latter had the advantage thus far, that the external os could be proved by visual examination to be round or abnormal in shape, and distinctly smaller than in the usually well-developed healthy uterus; and, in some instances, to be so small as not to permit the passage of the ordinary sound. This statement could not be called in question, because, through the speculum, the os uteri could be exposed, and the point of the sound could be directed into it unerringly—a fact which could not be accepted with regard to the inner orifice, whatever the seat of the difficulty was. The result of its discovery was the conclusion that all dysmenorrhœa was of mechanical origin, and the only means of curing it was enlargement of the cervical canal. At first those who believed that the narrowing was situated at the inner orifice effected its dilatation by means of bougies, but after a time, the knife was adopted for this purpose, and the strictured part divided.

Those who believed that the inner orifice was the seat of contraction, divided the whole of the cervix and lower part of the body, so as to divide both inner and outer orifices, while those who regarded the external orifice as the cause of the trouble were satisfied with dividing the vaginal portion only. Although the use of the knife for this purpose was at one time an extremely common practice, it has fallen into comparative disuse, although not entirely discarded; but the regular use of the sound led to other views which culminated in the so-called mechanical system of uterine pathology.

During my early student days, women suffered mainly from two diseases—ulceration of the cervix, which was rubbed weekly with nitrate of silver, and stricture of the cervix, which was dilated by bougies at similar intervals.

These views have not held their ground—for the reasons against them are unanswerable—though they are not quite unheard of still. The canal of the cervix has been frequently measured, and it has been found that dysmenorrhœa is present in a severe form in many cases, in which the cervical canal is so capacious as to offer no resistance to No. 10 or even a No. 12 English bougie. Division of the cervix frequently fails to relieve, even when carried out to an extreme degree of severity. On the other hand, it is well established that menstruation may be painless in women who have what is called a pin-hole os uteri. Dilatation of the cervix is still practised for the cure of dysmenorrhœa, but the grounds for it have been shifted, and it is done now not with the view of enlarging the canal, but to destroy spasm by stretching the tissues around the os on the same principle on which the sphincter is stretched for the spasms caused by anal fissure or the orifice of the vagina for vaginisms. At present, I am not concerned in estimating its value for the purpose for which it is done, but to point out the fact that it is still carried out, and the reasons given for it. But the discovery of the uterine sound led to further development of the mechanical theory of uterine pathology. Displacements of the uterus had long been known, although little importance had been attached to them. The use of the sound led to a lively sense of their extreme frequency, and probably their extreme frequency led to the idea of their importance as factors in female suffering, and they came to hold the position previously held by the inflammation and ulceration of the cervix theory, and the mechanical system became the real successor of the inflammatory theory.

According to this theory, almost all uterine troubles were due to the so-called displacements of the womb—versions and flexions. These conditions had been known for some time before any great pathological importance was attached to them; but the advocates of the mechanical system elevated them into a pathological rank of the highest importance. I will state the principles of the system in the words of a distinguished exponent:—

1. "Patients suffering from symptoms of uterine inflammation (or more properly from symptoms referable to the uterus) are almost universally found to be affected with flexion or alteration in the shape of the uterus, of easily recognised character, but varying in degree."

2. "The change in the form and shape of the uterus is frequently brought about in consequence of the tissues of the uterus being previously in a state of unusual softness, or what may often be correctly designated as chronic inflammation."

3. "The flexion once produced is not only liable to perpetuate itself, so to speak, but continues to act necessarily as the cause of the chronic inflammation present."

These three propositions are, in the main, true, and have been accepted with the exception of the last sentence in the third proposition—viz., that flexions "continue to act necessarily as the cause of the chronic inflammation present." Indeed, with regard to the assertion that flexions are almost always present in association with uterine trouble, it may be said that it is not sufficiently general, for it might well have been asserted that almost all women are the subjects of version or flexion of the womb.

The pathological importance of misplacements must depend, in the first instance, upon the notion we have of the so-called normal position of the organ. If it be maintained that the only normal position is one occupying the axis of the brim of the pelvis, with a very slight anterior curve, and that the normal movements permissible to the organ are of an extremely limited character, then there can be but one opinion of the great importance of flexions and versions. If, on the other hand, it be held that the degree of movement of the uterus in health have wider limits, then their importance becomes minimised. The advocates of the mechanical system of uterine pathology assumed the former view to be correct, without even testing its accuracy, and built their system upon this untested hypothesis. These displacements were consequently brought about by every form of healthy physical exercise—walking, sitting, riding, lifting, leaping; or the discharge of household and social duties, such as the use of the sewing machine, playing the harmonium, &c., &c.; or even by no exercise at all, by lying on the back or prone. A woman could do nothing, not even exist, without running the risk of causing displacement of the womb. Bicycling was not then practised by women; what its effects might have been I dare not imagine. The symptoms to which these abnormalities in shape and position gave rise were many.

Pain, lameness, elevated to the dignity of "uterine dyskinesia," so that "uterine distortions and displacements invariably gave rise to pain on locomotion," and "pain on locomotion of such a kind as to be referable to the uterus is invariably associated with the presence of uterine distortion and displacement." "Undue tenderness of the uterus to touch is rarely observed except in cases in which flexion is present;" dysmenorrhœa—due to the narrowing of the inner orifice caused by the flexion.

Sanious, or purulent discharge and leucorrhœa from retention of the menstrual fluid; and dilatation of the cavity of the uterus.

Menorrhagia, amenorrhœa, sterility, and abortion.

Reflex phenomena, sickness, nausea, hysteria, convulsions, cephalagia, and melancholia.

Constipation and diarrhœa, through blocking up of the rectum, or irritation of it by the weight of the uterus; painful defæcation and prolapsus of the rectum. Disorders of the bladder: frequent micturition. "Anterior displacements, as a rule, depress the bladder. The body of the uterus comes to occupy the space of the bladder which it invaginates; the posterior wall of the bladder is thus pressed downwards until it actually touches the floor of the organ. The bladder becomes distended laterally more than usual as urine enters it, instead of equably, and its spherical shape no longer remains."

Pain after emptying the bladder; retention of urine.

Flexions, moreover, produce changes in the uterus itself—congestion and engorgement of the uterus by compression of the vessels at the point of flexion, and prevention of the return of blood by the veins; hypertrophy of the uterus; ulceration or erosion of the cervix; atrophy of the uterine walls at the point of flexion; narrowing of the uterine canal, and regurgitation of the menstrual fluid along the Fallopian tubes, parametric, œdema, and indirectly, cellulitis.

These may be classified for the sake of convenience under the following heads:—

1. The uterus in health occupies a certain position in the pelvis and has a certain shape; any marked deviation from which—be it version or flexion—is pathological, and the cause of serious troubles.

2. These troubles arise—(*a*) from narrowing of the canal at the point of flexion, causing obstruction to the menstrual flow and dilatation of the uterine cavity, &c.; (*b*) from pressure on the blood-vessels in the uterine wall at the point of flexion,

giving rise to congestion of the body of the uterus and hypertrophy, disorders of menstruation, and discharges; (*c*) from pressure on surrounding organs—bladder and rectum; (*d*) certain reflex symptoms.

The only means of cure was to straighten the organ mechanically, and maintain it by mechanical supports in the assumed normal position.

This is a brief account of the mechanical system, which was almost universally accepted twenty years ago. It had much to recommend it to the hardworked practitioner, but its chief recommendation was its simplicity and the ease with which the pathological condition could be diagnosed. As in the case of the inflammatory theory, there were those who opposed it; indeed, even scouted at it—"Why can't they let the thing lie as it likes?"—and, in the course of time, many workers devoted themselves to discover evidence by which to test its propositions. It should be observed that the sum total of proved fact in the system amounts to this—that uterine displacements are of extreme frequency, and that they are constantly met with in association with uterine and other sufferings. All the statements with regard to their causal relations to suffering and pathological changes—with one exception, which I shall refer to immediately—are based on no trustworthy evidence; they are simply inferences founded upon their frequent association with such symptoms and pathological lesions.

At the time the theory was promulgated, and while it was still generally accepted, it was assumed that the uterus in health occupied a certain position called the normal, which I have described. No systematic investigation had ever been made of the position of the organ in healthy women, living or dead. In the course of time, however, and after displacements had come to be recognised as pathological conditions of importance, it was observed again and again that many women who presented no uterine symptoms were the subjects of even acute flexion; and the opponents of the mechanical theory made use of these cases to point out the trivial pathological importance of the condition. But at last a systematic investigation was made of the state of the organ in virgins who complained of no pelvic trouble, and it was found that in the great majority of them (about 70 per cent) the organ was markedly flexed, while a further investigation into the state of the organ in women who suffered uterine trouble showed nearly the same, but rather a greater percentage of these displacements. The necessary inference from these observations was that the normal position of the uterus was not such as had been assumed by the advocates of the mechanical theory, but that a far wider range of movement and variation of shape was permissible to the uterus in health than was then taught; and that displacements are not the cause of the sufferings which had been attributed to them, but simply the state of the womb generally present in women, whether they suffer or not. The proposition that almost all women who suffered from uterine disorders were the subjects of flexion, became, therefore, necessarily extended to almost all women in health are the subjects of flexion.

Again, with regard to narrowing of the cervical canal, with the consequent retention of menstrual fluid, dilatation of the cavity of the body of the uterus, with regurgitation of menstrual blood along the Fallopian tubes as a result of flexion of the uterus, there was no evidence of the least reliable character produced in support of this view, except a few uteri of aged women discovered by Virchow. In these the internal orifice was narrowed or closed, and the cavity above dilated. But then it was known that in old age the canal of the uterus becomes narrowed and the inner orifice occasionally closed, giving rise to retention of the secretions and dilatation of the cavity of the body; but, as far as observations in menstruating women have gone, such consequences are not known to arise from flexion.

Again, the changes which are supposed to take place in the uterus are said to be due to an interference with the circulation at the point of flexion; the vessels being pressed upon, the return of the blood by the veins is impeded; congestion follows with its manifold results—increased secretion, hypertrophy, pain, tenderness, &c. This conclusion is again the result of two assumptions:—(1) That the vessels in the walls of the uterus at the point of flexion become compressed; (2) that the vessels in the uterine walls run in a longitudinal direction. The first of these—that the vessels at the point referred to are compressed—may be admitted as extremely probable; the second cannot be granted, for it has been shown that the direction of the vessels in the wall of the uterus is not longitudinal but transverse. The utero-ovarian arteries run outside the uterus in the cellular tissue of the broad ligament, and from cervix to fundus; but the branches given from them to supply the body of the uterus run, not longitudinally, but transversely across the uterus, forming vascular circles in its wall, while in the cervix only they run in a downward direction. It follows, therefore, that every part of the uterine body receives its supply of blood from the uterine arteries at its own level, and that the shape of the organ—be it bent or be it straight—cannot interfere with its blood supply. This shows clearly that flexions cannot give rise to the changes in the uterus itself, which have been attributed to them by the advocates of the mechanical system of uterine pathology, any more than that a permanent flexion of the finger causes congestion of the phalanges beyond the flexed point.

Certain troubles are again referred to the weight of the uterus, and to pressure exercised by it upon surrounding organs—these organs are the bladder and rectum. Now, the weight of the uterus is from 12 to 16 drs.—that is, when taken out of the body and placed in scales. In the pelvis it is in much the same state as a floating body, and is therefore without weight. Were it not so, however, the weight of the organ is much the same as that of a piece of a small intestine of the same length as the uterus, together with its contents. Now, the uterus or small intestines must lie on the rectum and bladder, and it has never been suggested that the weight of the small intestine gives rise to the rectal and vesical symptoms which have been attributed to pressure of the uterus. Moreover, it has been shown that the relation of the walls of the bladder, ascribed to the pressure of the antiflexed uterus, is not really due to antiflexion, but is a natural condition. The same relation is present in the absence of antiflexion; for, when the bladder is emptied, it does not contract into the shape of a sphere, but the posterior wall falls downwards and forwards upon the base and anterior wall, giving rise to the condition which was attributed to antiflexion of the uterus. Besides, increase in the size and weight of the uterus, even to a double, triple, or quadruple degree, does not interfere with the function of the rectum or bladder. This is frequently seen in cases of fibroid tumours of the uterus and in pregnancy; and the inevitable conclusion is that the uterus exercises no pressure on the rectum or the bladder except when it is fixed or incarcerated, when its pressure may be evident and productive of even disastrous results. It was found, therefore, that the principles upon which the mechanical system of uterine pathology was based—principles which at the time of their publication were untested—when made the subject of fuller investigation, failed to fulfil the conditions necessary to establish scientific truth; the foundations of the theory became undermined, and the whole superstructure collapsed; but in its ruinous state it is still precious to many practitioners, and the only comfort—lovingly cherished—of a large class of patients.

By this time the study of gynæcology had entered upon a new era. Its field had been rapidly enlarging, methods of diagnosis had been increased, and diagnosis, consequently, rendered more accurate; the value of each method had become more clearly estimated. Not only had the speculum and the sound—both of which had largely added to our powers of diagnosis and our knowledge—been long in use, but examination by double touch or the bimanual method had become generally adopted in the schools, and perfected to such a degree as to render the use of the speculum and the sound in diagnosis comparatively needless. This method enlarged our ideas of pelvic disease, and led to the abolition of theories of uterine pathology in the sense I have used that term. Investigation of the female pelvis is not now limited to the size and aspect of the vagina and cervix, and the size and direction of the uterine canal, but embraces an examination of the whole of the pelvic organs—the uterus, tubes, ovaries, and their peritoneal covering, together with the rectum and bladder. Surgery has contributed in no small degree to a better knowledge of the diseases of the parts around the uterus and of their pathology, and the treatment of the diseases of the pelvis has become day by day of a more surgical character. In this connection I need only mention the diseases of the tubes, ovaries, broad ligaments, and peritoneum as conditions, upon the nature, diagnosis, and pathology of which surgery has largely helped to give us definite knowledge. Still, there is much in these conditions with regard to which our knowledge is vague and imperfect—debatable ground—especially with regard to the causes of inflammation of the appendages and peritoneum, and their relation to inflammation of the uterus.

Setting aside the removal of ovarian tumours, the operations practised upon the pelvic organs thirty years ago were limited to division of the cervix and removal of the cervix, the removal of fibroid tumours and polypi, and the occasional opening of pelvic abscesses, together with the plastic operations for fistula and rupture of the perinæum. A little more than twenty years ago, however, a new class of operation was introduced—the so-called physiological operation — the removal of the ovaries with a view to produce the menopause — and the removal of the appendages for inflammatory disease, as well as for other general conditions, especially for neuroses. It would be difficult to estimate the exact amount of good or harm that the physiological operations have done—opinions differ so widely with regard to their value—but the removal of the uterine appendages for neuroses has been practically discarded. Indeed, it is now generally believed that neurosis is a contra-indication to the operation. How largely these operations were carried out for fibroid tumours, and for inflammatory disease and other pelvic troubles it is impossible to estimate, but it is certain that they have been carried out on a very large scale. Nor is it possible to ascertain what amount of success followed their performance. This arises from several causes, and amongst them the following are perhaps the most important, in this country at least:—1. The difficulty of following cases which have been operated upon for a sufficient length of time, to ascertain the ultimate effects of the operation on health. 2. The undue haste which operators have shown to publish their cases. 3. The natural bias of the human mind in favour of its own conclusions. 4. The difficulty of classifying the cases operated upon. 5. The extraordinary properties of numbers, and the still more extraordinary properties of statistics. If white is ever proved to be black, or black white, this feat will be accomplished by statistics only.

For nearly twenty years these operations for the removal of the uterine appendages have been done in large numbers; for serious disease as well as for the most trifling, such as prolapsed ovary, ovarian pain, dysmenorrhœa, &c., and at one time a value was attached to their performance which was not justified by our knowledge or ignorance of their results. The risk of the operation was unduly minimised, while the dangers of the disease were exalted above measure. The women who suffered from tubal disease were said to be in serious and imminent danger from rupture of the dilated tubes, giving rise to peritonitis and rapid death, and this was asserted in the absence of *post-mortem* evidence, for such causes of death were infinitely rarely seen in the dead-house. Meanwhile, the mortality from the operation was very considerable, and still is a serious factor in deciding upon whether it should be undertaken or not. Moreover, the value of the operations was too highly placed, the relief obtained from them was unduly magnified, while the evil results and suffering following them were minimised or ignored. Time, indeed, not a very long time, together with other causes, has, however, brought about a change in the views then held with regard to these surgical measures. It has been found that the relief afforded by the operation is not such as to justify the statements of its advocates; that although the appendages had been removed, the patient was often far from being cured, the neuroses remained as bad as ever, often worse: their sufferings, sometimes cured, sometimes mitigated, were sometimes not relieved; that in many cases the operation failed from a physiological point of view. These discoveries have led to the operation of the removal of the appendages for the diseases of which I speak being discarded or largely discarded. Especially is this the case on the continent of Europe, where the operation is being replaced by another—a much more complete operation, and an operation of a much more serious character, for it is no less than the removal of the whole of the female internal generative organs—the uterus, tubes and ovaries, and this is done both for inflammation and for fibroid tumours. This total extirpation of the internal generative organs, whatever may be said for or against it from a scientific and surgical point of view, is too new to have a history, so that it does not come within the scope of my address. It is too early to estimate its value as a curative means, its dangers and its mortality.

The sketch which I have presented to you of the history of gynæcology suggests many curious reflections. The inflammatory theory of uterine disease was brought prominently before the profession in this country about 1845. In the course of a few years it became generally accepted, and held vigorous sway until about 1860; gradually giving place, however, during the later years of that time, to the early form of the mechanical theory, which at first was limited to stricture of the uterine canal, but which, at a later period, merged into the mechanical system of uterine pathology which had displacement for its corner-stone. This system arrived at full vigour in the sixties and early seventies. By the end of the decade it was giving way before the inroads of the surgical wave which swept over us, and continues to this day, but which has been — as I have pointed out — for some years assuming another form than that which it originally presented. It seems, then, that the life duration of each of these theories is about ten years. Each one had a period of growth, full vigour, and senility—the senile stage of the one overlapping the infantile stage of its successor.

How is it that theories have been accepted so generally which have afterwards in so short a time been discarded? I believe that there are several reasons for this. In the first place, it is the result of the personality and enthusiasm of one or more men, convinced of the accuracy of their views, promulgating them alone in and out of season, ignoring everything not in accord with them, by their zeal and power influencing their fellow-men. Such, doubtless, was the case in regard to the inflammatory and the mechanical theories, and their acceptance became general. The advocates of these and any such theories had a vantage ground over their opponents—they had something new to put forth—they promised much to practitioners and patients—while their opponents, though often right, had nothing to offer—dealt in negations—while they only disproved, or attempted to disprove, the assertions of those whose promises were abundant. It is not difficult to imagine which party would win in the first canter under such conditions. There are, however, other reasons, the chief perhaps being that we too often read to believe, to accept as truth, whatever we find in print. The proof of this is to be found every day in medical literature. This state of mind is absolutely fatal to all successful searching after truth. We should read not to believe, but to criticise and doubt, or even disbelieve. A personally-known authority's statement of fact may be rightly accepted as true until it is proved to be wrong; but the statement of an unknown author—whether as to facts, figures, or opinions—should not be accepted unless accompanied by strong evidence or direct proof. The weight of authority—in gynæcology as in all else—has been an incubus retarding progress during the last fifty years. It is due to the reliance placed on authorities that so much work has to be done, simply in order to disprove accepted theories and statements which have no grounds except in the fancy of their promulgators. It took years of work, undertaken by many investigators, to disprove, point by point, the principles of the inflammatory and mechanical theories of uterine disease before these theories were relegated to their proper place; and so long as the medical mind remains credulous, instead of critical, in character, we may expect repetitions of the same process until we have reached the years that bring the scientific mind.

But since the exposure of the fallacies of the ulceration of the cervix and the mechanical theories of uterine pathology, have we been more guarded in accepting new views of pathology and treatment? It is true that no general system of pathology has been promulgated since, and in so far we have been fortunate. But what as regards the means of treatment? Has the surgical treatment of the diseases of women which is now in vogue been accepted after or without a full examination into its results? Has it been based on strictly scientific principles, and kept within strictly wise and necessary limits? Are the results which have been obtained such as to satisfy us with the measures which have been employed? That in many cases these measures are necessary and effectual cannot be questioned; but generally the answer must be in the negative, for already, after a few years' experience, these operations are being discarded, and are giving place to others. I cannot enter now into a discussion of the reasons for this disappointment, but there are a few circumstances bearing upon modern practice which I should like to refer to. The first is that during recent years treatment has received much greater attention at the hands of gynæcologists than is wise or desireable. I mean treatment without a full knowledge of the pathology and natural history of diseases. The discovery of the frequency of the diseases for which operations are now almost invariably performed is of so recent a date that we have not had the time to observe the natural course of those diseases. As soon as the disease is diagnosed, the operation is proposed, and, if permitted by the patient, performed. Such is the case with regard especially to tubal disease and extra-uterine pregnancy. On what sure grounds are these measures carried out so hastily? Do we know the natural history of either of these conditions in such a way as to apply our knowledge to any individual case? Do we not act, when advising operation, upon the idea of extreme danger? Do we not imagine that they are much more fatal than they really are? What is the proportion of deaths from salpingitis—from extra-uterine pregnancy? Is not recovery the rule in extra-uterine pregnancy when rupture takes place early, and death the exception? The devotion of our energies to active treatment when the course of the disease is not known is hardly calculated to benefit our patients or to enlarge our knowledge.

To devote all energy to treatment in the absence of accurate knowledge of the cause of disease is the practice of a class of practitioners who are specially and rightly abhorrent to the medical profession.

I would point out another highly objectionable and mischievous practice which has been carried out, especially during the last twenty years, by gynæcologists. I mean the undue haste to publish their operations—especially those of a serious and exceptionable character. This is frequently done in the course of a day or a few days, and before it is known whether the patient is going to recover or not. I need not say that it is long before the results as to cure are known. This can have no good effect upon our scientific knowledge. Exceptionally severe operations should be done in exceptional cases, and should not be the rule.

Again, the exhibition of specimens, which do not contribute in any way to promote knowledge of the disease, appears to me to be in a high degree degrading. As an instance of this, I would mention the exhibition of a multitude of fibroid tumours—varying in degree from the largest to the smallest, all of which have been removed by operation—none of which possess any interest of a scientific character.

It seems to me that when an operation or a series of operations have been performed, the natural course is to watch the cases until the results of the operation—immediate and remote—are known, and then to publish the results fully. This would help us to form a correct estimate of the value of such operations—their risk and curative effects—while the method which has been largely in vogue can only lead to confusion, as it has already done, and to a wrong estimate both of their danger and benefits.

Before I conclude, there is one other point of which I should like to make mention, and that is the absence of any great work on the prevention of uterine disease. How little has been done in the department of hygiene in the diseases of women. Indirectly, the application of antiseptics to midwifery has contributed in a considerable degree to the prevention of inflammatory disease of the generative organs. The same may be said of the use of antiseptics in operations. Setting aside these, how little has been done with the object of discovering the means of preventing uterine troubles. These troubles are undoubtedly on the increase; dysmenorrhœa is extremely common, and a very large number of girls, who enjoy good health until puberty, break down in health at that period, and suffer from menorrhagia, or amenorrhœa, or dysmenorrhœa. This is true of the higher classes and also of the poorer classes, who inhabit our large cities, and the breakdown is due doubtless to their mode of life. Our civilization is not an unmixed blessing, for it brings in its train a number of diseases which entail great suffering, unfit women for the duties of life, of society, of marriage and motherhood. Education, competition, luxurious living, unhealthy surroundings, are steadily doing their work, and cause deterioration of the health of our girls—in what way, I do not say, but the facts are patent, and it becomes us to be prepared to meet them with means to prevent their evil consequences. They exist, and we cannot do away with them. There is no power that can abolish these causes of disease in our midst. They are a part of our civilization, of life in large cities, and our business should be a preparation to ward off their ill effects and find means whereby to develop the physique of our girls, so that they may be fit to discharge the duties which devolve upon them in life—be it in the fight for bread, or in the duties pertaining to wife and mother. This is a field which is almost new—and will remain new so long as civilization progresses and cities increase in number and magnitude—a field in which every one of us may find abundant room for his abilities and energies, and ample reward for the exercise of them.

CLINICAL MEMORANDA,

BEING SELECTED CASES FROM THE WARDS OF

DR. M'CALL ANDERSON,
Professor of Clinical Medicine in the University of Glasgow.

(REPORTED BY JOHN WYLLIE NICOL, M.B.)

XVII.

37. *Case illustrating the Occasional Difficulty in the Diagnosis of the "Gastric Crises" of Locomotor Ataxy.*

C. R., aged 37, mason, was admitted to Ward II on 31st October, 1895, complaining of pain in the upper part of the abdomen, associated with vomiting.

No neurotic tendency could be made out in the family history. His father died at the age of 66, of influenza; his mother at 75, of "old age." He is one of a family of ten. Six are well. One died in infancy, one of cancer of the breast, and the third from a cause unknown to the patient.

He was always a healthy man till six and a-half years ago. At this time, when riding one day, he was struck violently by the pommel of his saddle. He suffered considerable pain, and blood was passed on micturition for a day, and for several days there was a discharge from the urethra. No further urinary trouble, however, followed. He has never had any venereal disease. Six years ago, after a wetting, he had an attack of "rheumatic gout," the ankles and knees being affected. He was confined to bed for two weeks, and was off work for seven. His present illness seems to date from four years ago. At that time he had a fall from a height of fourteen feet, landing on the abdomen. No definite injuries were discovered, and after remaining in bed for two days he got up. Nausea and vomiting followed, however, and he went back to bed immediately. He had several attacks of vomiting during the next three days, but in a day or two more he returned to work. The vomiting was unaccompanied by pain, and did not seem to be specially connected with the taking of food. During the following year he had five similar attacks. These gradually increased in frequency, and during the next year he had twelve. Now, however, the vomiting was preceded and accompanied by well-marked pain in the upper part of the abdomen. During the last two years the attacks have increased in frequency, and for a long time before admission occurred twice daily. When the pain was very agonising a distinct swelling of the upper part of the abdomen was present, and persisted in varying degree till the pain passed off, but there was no tenderness. There was no history of jaundice or gallstones, nor has there been any vomiting of blood. Constipation was present throughout. In the intervals between the attacks he feels pretty well, and the digestion is not disturbed.

For fifteen years prior to last June he resided in South Africa, and during the last four he has consulted many doctors about his symptoms. Various views were held as to their cause. They were ascribed at different times to "indigestion," "sluggish liver," "gallstones," "obstruction of bile," "obstruc- of bowel," &c. In June his medical adviser, considering that there was some "obstruction in connection with the biliary apparatus," sent him to a surgeon in England for operation. Since his arrival in this country in July he has consulted several medical men, and for a month was under treatment for "stricture of the bowel." No form of treatment has hitherto given him much relief.

On admission he was put upon light diet in six small meals daily; regulation of bowels with castor oil; and half-drachm doses of liq. pepticus after each meal.

15th November.—For three or four days after admission the pain and vomiting were less severe, but latterly the pain has increased, though the vomiting continues less. The attacks occur fairly regularly twice a day, usually in the early morning and afternoon. They set in with severe pain situated across the front of the abdomen, between umbilicus and epigastrium. The pain varies in intensity. It does not pass round to the spine on either side, and is never shooting in character. It is relieved somewhat by pressure, and there is no tenderness. When the pain is acute, a prominent rounded swelling appears in the epigastrium. It is tympanitic to percussion and tense, but as the pain lessens it becomes soft and compressible. It comes and goes with the paroxysms of pain. No definite tumour can be felt, and there is no visible peristalsis. The spasms of pain come at irregular intervals for two or three hours, and then pass off. During an attack he suffers from nausea, and usually vomits once or twice. The vomited matter consists first of food (if a meal has been recently taken), and then of clear mucous fluid, frequently mixed with considerable quantities of bile. The vomiting is not related to the taking of food.

29th November.—Yesterday he complained for the first time of pains of a shooting character in the legs. To-day he was examined by Dr. M'Call Anderson. The knee jerks were found to be absent, and, on the suspicion that he might be suffering from locomotor ataxia, he was closely questioned. He admits having had shooting pains at intervals for several months. They are situated about the middle of the thighs and at the ankles, and they come and go for several hours at a time. During the past two years the abdominal pain has had somewhat the character of a "girdle-pain." He feels when the pain is present as if there is a band about 2 inches broad lying across the front of the abdomen above the umbilicus. He has experienced no difficulty in walking in an ordinary way, but states that, while formerly when at work he was able to walk along a 3-inch plank without difficulty, he has been unable to do so since his present illness began, and during the past year he has not attempted it through fear of falling. For the last eight months the act of defæcation has set up attacks of the abdominal pain.

On examination it is found that there is a slight tendency to stamping in his gait. He has also a little difficulty in walking along a straight line. When asked to stand with his feet together and eyes shut he does not lose his balance, but sways a little more than is natural. The deep reflexes are absent, but the superficial ones are quite active. The Argyll-Robertson pupil is present.

With regard to the eyes, Dr. Hinshelwood reports that there is "slight hypermetropia of both eyes, and marked hyperæmia in both optic discs, with slight obscuration of the edges, particularly well marked in the right eye."

The treatment adopted up to 29th November was as follows: —Nitroglycerine was given first on the 3rd November, in doses of $\frac{1}{100}$ gr. thrice daily, gradually increased until on the 21st he was having $\frac{8}{100}$ gr. three times a day. Thereafter sulphate of atropine was given hypodermically—$\frac{1}{100}$ gr. being given thrice daily. Neither of these drugs produced the slightest effect on the symptoms; and accordingly it was decided to try the effect of antipyrin, beginning with 10 grs. thrice daily and increasing the dose if necessary.

24th December.—The antipyrin, which has been gradually increased since its commencement on 29th November, has for the last few days been administered in four doses (of 30 grs. each) daily, with the result that the shooting pains in the limbs have disappeared, and the severe abdominal pain has been much mitigated.

7th January, 1896.—As nausea and vomiting supervened three days ago, the method of administration of the antipyrin was changed, and he is now having the same quantity daily, but in six doses of 20 grs. each.

15th January.—He feels much better again, the sickness having almost entirely disappeared, the severe abdominal pain being absent and only a dull aching in the same region being felt, with occasional pains in the legs. Until the antipyrin was commenced he was in great measure bereft of sleep, but now he sleeps soundly.

The interest of this case centres in the question of diagnosis. It will be observed that the patient had been seen from time to time by many practitioners, both in this country and abroad, and no one seems to have had any suspicion of the nature of the disease. This is the less to be wondered at, seeing that the abdominal were the prominent symptoms throughout, and threw into the shade the others pointing to locomotor ataxy. A careful examination, however, left no doubt that this was the disease in question, and that the gastric symptoms corresponded with the so-called "gastric crises" of that affection. For it was found that, associated with them, were many of the symptoms of disease of the posterior columns of the cord, viz., the ataxia, the planting of the heels on the ground in walking, the lightning pains in the lower extremities, the absence of the knee-jerks, and the presence of the "Argyll-Robertson pupil." If further proof of the accuracy of the diagnosis is needed it is to be found in the relief which has been obtained from the administration of antipyrin in increasing doses—a remedy which Dr. Anderson has found to be almost a specific for the relief of lightning pains in many cases of locomotor ataxy.

It is perhaps not so well known as it ought to be that the "gastric crises" may for long constitute almost the sole symptom of the disease. "Such crises," wrote Charcot,[1] "may appear at the beginning of the disease, and may for long years form, together with shooting pains, the whole symptomatology of the disease. When the ataxia is fully established, and motor inco-ordination has been developed, the gastric crises do not therefore always disappear; often, on the contrary, they are reproduced with every paroxysm of shooting pain until the fatal termination."

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[1] Charcot, *Lectures on Diseases of the Nervous System* (second series), New Sydenham Society, 1881, pp. 31, 32.

"Many a time I have seen this symptom diverting the attention of the physician and causing him to misapprehend the real nature of the disorder. I also have several times fallen into the snare in other days. A notary came from the provinces ten years ago to consult me concerning attacks of cardialgia, presenting the characters which I have just described; he suffered likewise in the extremities from paroxysmal pains which, however, were not very acute. I was not then aware of the link which unites these different phenomena. The gastric crises have disappeared, but the patient suffers to-day from all the symptoms of locomotor ataxia of the most characteristic kind.

"The first time it was given to me to recognise the true signification of gastric crises occurred when attending a young physician, who, besides these crises, suffered from shooting pains and hydrarthrosis of one of the knees, spontaneously developed (arthropathy of ataxic patients). Motor inco-ordination did not show itself in his case till some months later. The whole of this group of symptoms—gastric crises, shooting pains, and arthropathics—which have no affinity in appearance, become invested with an almost specific character when looked upon in a true light.

"I have also seen gastric crises coexist with lightning pains, during more than five years, without being accompanied by motor disorders, in the case of M. T. The diagnosis was rendered easy in this case owing to the existence of incipient atrophy of one of the optic nerves. The opinion which I expressed almost from the first, concerning the nature of the case, was, nevertheless, keenly contested by several physicians who visited the patient. To-day my anticipations have been found only too amply justified."

38. *The Treatment of Syphilis by Injections of Syphilitic Antitoxine.*[1]

J. C., æt. 22, labourer, admitted to Ward V, on 11th November, 1895, suffering from a skin eruption of four weeks' duration.

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[1] See article by Mr. Cotterell, in the *British Journal of Dermatology*, November, 1895, p. 349.

The family and personal history reveal nothing of importance in connection with his present illness.

Seven weeks before admission he exposed himself to contagion, and a fortnight afterwards he noticed a discharge from the urethra, associated with pain on micturition. A week later there appeared a hard chancre on the glans just at the corona, and this was followed in a fortnight by an eruption on his skin, which chiefly affected the head, buttocks, and trunk. During the appearance of the eruption he suffered very considerably from pains in his legs, and from headache, both of which were worse at night. A week before admission he began to feel his throat sore, and his voice became hoarse; but the hoarseness was out of all proportion to the pain. There was no pain or itching in connection with the eruption, and little exudation except where pustules formed.

On examination, the chancre was found to be healed, but at its site there was great induration. The inguinal glands were very hard and enlarged. The eruption was chiefly on the face and trunk, but the limbs were also slightly affected. It was symmetrical, coppery-coloured, dry, and scaly. It consisted of rounded discrete patches. Most of them were slightly elevated, and they varied in size from that of a halfpenny down to that of a pin-head. In the region of the anus there were a few condylomata. On the tongue were several superficial erosions, and on the buccal mucous membrane there were large elevated mucous plaques, and on the lips a few smaller ones. At the junction of the oral mucous membrane with the skin there were fissures on both sides, so deep that when touched they bled. There was slight superficial ulceration of both tonsils.

On 15th November he was placed under treatment by hypodermic injections of serum, obtained from a patient suffering from well-marked syphilis (see below). The injections were given on an average every second day, and were continued till 9th December. The quantity injected at first was ½ c.c., and this was gradually increased, until on the last four occasions 5 c.c. were injected. In all, 35½ c.c. of serum were injected, approximately an ounce and a quarter.

On 11th December the induration at the side of the chancre was less marked. The glands remained unchanged. The skin eruption had entirely disappeared, only the stains remaining. The erosions on the tongue were healed, and the mucous patches almost gone. The ulceration of the tonsils had healed, only the scars being visible.

On 21st December he was dismissed, still further improvement having taken place.

The following is a short outline of the patient, J. M'K., aged 28, stableman, from whom the serum for the above treatment was obtained:—

Two years ago he had a single sore on the penis, with enlargement of the glands in the groin. This was followed by nocturnal headaches, pains in the limbs, and a skin eruption, which disappeared under treatment. He has always been hoarse, but does not remember having had a sore throat. His hair has fallen out since he contracted syphilis. A year ago he was under treatment in Ward V for syphilitic psoriasis. When the serum was obtained from him, he had three rings of eruption on his skin—one on the right arm, another on the left side, and the third on the nape of the neck. Each was dusky in colour, tuberculated, dry, and insensitive.

39. *Dilatation of the Heart treated by Exercises on the Schott principle.*

Mrs. B., æt. 30, admitted to Ward VII on 1st November, 1895, complaining of weakness, palpitation with breathlessness on exertion, and cough of six months' duration.

The family history reveals nothing of importance in connection with her present illness.

She was married eight years ago, and has had four children —the first, third, and fourth at full term, the second about the seventh month. The miscarriage was supposed to be due to an attack of cystitis which subsided rapidly afterwards. She had a similar urinary attack between the sixth and seventh month of her third pregnancy. It yielded to rest in bed and local treatment, and since then there has been no recurrence. With the above exceptions, she had always enjoyed excellent health. She has never had rheumatic fever, scarlet fever, or chorea.

The present attack began about six months ago with a feeling of weakness after exertion. Breathlessness and palpitation soon followed, and it was noticed that agitation gave rise to attacks of palpitation. A little later cough set in, accompanied by a whitish, frothy expectoration. These symptoms gradually increased until now she is quite unable for any housework, though when lying at rest in bed she feels pretty comfortable. She has not at any time noticed swelling of the legs or puffiness under the eyes.

Examination on Admission.—Heart—Heart's action was found to be very rapid and irregular. The apex beat was diffuse, and there was epigastric pulsation. The apex beat was situated 2⅝ in. below the nipple, and 1¼ in. to the left of the nipple line. The percussion dulness extends upwards to the upper border of the third left costal cartilage. The right edge of dulness is 1⅛ in. to the right of the midsternal line. Transverse measurement at level of the nipple is 5⅝ in. Oblique measurement from third rib to apex is 7 in. There is a soft blowing V.S. murmur heard at the apex.

Pulse.—It is very irregular and thready; counted at the apex beat it numbers 152 beats per minute.

Liver.—There is slight tenderness in the epigastrium. Percussion dulness measures 4¼ in. in the nipple line.

Lungs.—There are fine moist râles heard over both bases. Nothing further abnormal made out.

Urine.—Normal.

Dr. M'Call Anderson decided to treat the patient by the Schott method. On 8th November she had a bath, and another on 9th November. The first bath seemed to cause no ill effects, but the second one produced a considerable increase in the difficulty of breathing and lividity, probably owing to the temperature of the room not being attended to. The baths were therefore stopped, and on 16th November treatment by exercises was commenced, the first four exercises being given on that day. On 17th and 18th November four more exercises were added on each day, and on the 19th she had the whole of the exercises. From that date till 6th December she had the full course of exercises daily.

Dr. M'Call Anderson examined her on 11th December with the following results:—

Heart.—Apex beat is now found to be 2½ in. below the nipple, and half an inch outside the nipple line. The right border of cardiac dulness is three-quarters of an inch to the right of the middle of the sternum. Transverse measurement at level of nipple is 4¼ in., and the oblique measurement 6 in.

Pulse.—It is much stronger and more regular. It numbers 88 to 104.

Liver.—The tenderness has gone. It now measures 4 in. in the nipple line.

Lungs.—The râles have disappeared.

Urine.—Normal. It has increased decidedly in quantity since the exercises were commenced.

General Condition.—The lividity has entirely disappeared, and the breathing is much freer. She feels better and her strength has increased, as is apparent to the one giving her the exercises.

13*th December.*—She went home to-day owing to the illness of her child, so that the course of treatment was interrupted, the evil consequences of which will, no doubt, soon become apparent.

40. *Aneurysm of the Aorta treated by Baths on the Schott principle.*

A. B., a lady, aged 58, who had been for many years an invalid, was first noticed to have pulsation in the suprasternal notch in November, 1894. She had for some years previously enjoyed partially recovered health, but in the autumn of that year was subject to mental disquietude on account of family affairs. Shortly after this period of excitement the first symptoms were noticed, and when an examination was made, in the end of 1894, it was found that pulsation was present in the suprasternal notch, and extended 1 in. to 1¼ in. above it. It was also to be felt more slightly to the left, and to a less extent to the right of the sterno-mastoids. There was no definite dulness in the chest itself below the level of the clavicles. There were also no pressure symptoms. The diagnosis hinged, therefore, on the presence of abnormal and expansile pulsation in the suprasternal notch. Hence it was inferred that an aneurysm of the transverse part of the arch of the aorta was present. The patient was treated by the ordinary drugs—potass. iodid., amyl. iodid., tinct. veratr. virid., &c. Of these she bore the last best, and it seemed to improve the condition to some extent. None of them, however, had any permanent effect, and it was therefore decided to try the Schott treatment carefully. In August, 1895, she was put upon a course of baths, the exercises being considered inappropriate. When the course began, the physical signs were as follows:—In the suprasternal notch, expansile pulsation, extending 1¼ in. above the sternum; and to the right and left (in the course of the subclavian arteries) a less marked pulsation. The pulse was regular, and averaged between 80 and 90. Palpitation was a frequent symptom. The cardiac dulness measured transversely 3¾ in.; its upper limit was not altered. Cramps in the legs were frequent, and were apparently due to varicose veins from which the patient suffered.

From the 7th August until the 13th September she underwent a course of baths—twenty-eight in all being given. Of these, two or three were on consecutive days, then there was an interval of a day. At one time the baths contained 2 lb. NaCl., and half an ounce to one ounce $CaCl_2$.; at another, 1 lb. $NaHCO_2$, and 1½ lb. 25 per cent HCl. Beyond this limit the strength was not increased.

At the end of the course the cardiac dulness, which had before measured 3¾ in. in the transverse diameter, was reduced to 2½ in. The pulse rate had fallen from between 80 and 90 (a rate which rose when patient was excited, or exerted herself, to over 100) to an average of about 74. Palpitation was much less troublesome. The cramps in the legs were less frequent, and the veins appeared to be less distended. There was thus a marked improvement in the cardiac condition. The aneurysmal aspect of the case was slightly improved. The pulsation was quieter, and the cardiac sounds (no murmur had ever been present) were less distinctly heard over the affected area. Both sounds remained audible, and the difference in the pulse rate and intensity seemed to be determined by the effect of the treatment upon the heart, apart from any influence it may have had upon the great vessels. Her general condition was much improved—a circumstance which was apparent, not only to herself, but also to her friends.

TWO CASES OF TUBERCULAR LARYNGITIS, IN WHICH COMPLETE RECOVERY TOOK PLACE; ALSO, TWO CASES OF MALIGNANT DISEASE OF THE TONSIL TREATED BY OPERATION, AND WELL MORE THAN FOUR YEARS THEREAFTER.[1]

BY DAVID NEWMAN, M.D.

CASE I.—*Primary Tuberculosis of Larynx; hæmoptysis; tubercular sputa; dysphagia; cough; emaciation; anæmia; secondary involvement of left lung; treatment by iodoform spray, &c.; improvement, followed by cure; well six years after.*

J. P., aged 29, who came under my observation for the first time in January, 1889, then told me that the first indication of the disease was impairment of the voice, which commenced at the beginning of September of the previous year. At that time he was examined by his family attendant, who told him that he was suffering from a chronic catarrhal laryngitis. When the patient was seen by me, the voice was soft, very weak, and aphonic; but occasionally it suddenly broke into a falsetto note, which was sometimes maintained for a few minutes. The patient stated that from the onset of his illness he had had three slight attacks of hæmoptysis, which showed themselves by the presence of small clots or streaks of blood on the surface of the sputa. The quantity of blood lost at an individual time was never more than a few drops. The expectoration was composed of greyish-white semi-transparent muco-purulent material, which frequently contained large numbers of tubercular bacilli. At no time, however, was the expectoration very profuse.

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[1] Paper read, and specimens shown, at the Laryngological Society of London, 8th January, 1896.

On examination of the larynx, the epiglottis, and the mucous membrane covering the arytenoid cartilage on the left side, presented the characteristic appearance of tubercular laryngitis. At this time (January, 1889) the vocal cords were normal in appearance, but the mucous membrane of the larynx was at one point studded over by numerous miliary tubercles, which were distinctly seen lying in the superficial layer of the mucous membrane. At this time there were no objective or subjective evidences of tubercular disease elsewhere than in the larynx. The patient complained of considerable difficulty in swallowing, and he said that on account of the pain he had been prevented from taking a proper amount of nourishment; indeed, he had only been able to partake of semifluid food. During the last fortnight of 1888, cough was a more or less constant symptom, and generally was most severe and persistent in the evening. Emaciation and anæmia were marked. A very careful examination of the lungs failed to reveal any abnormality; the temperature was practically normal. Appropriate treatment was adopted, and the patient was carefully watched, frequent examinations being made of the sputa, larynx, and lungs. The sputa continued, during the earlier months of the year, to contain tubercular bacilli, but it was only in May, 1889, that any physical signs developed indicative of pulmonary phthisis, and these were limited to the left side of the chest.

CASE II.—*Primary Tuberculosis of Larynx without Ulceration; dyspnœa; dysphagia; cough; emaciation; anæmia; tubercular sputa; secondary implication of right lung; iodoform spray, &c.; recovery; well eight years after.*

The second case in many respects resembled the one just described, it also being a case of primary tuberculosis of the larynx, in which the lungs became involved secondarily.

The patient, W. B., aged 19, was first seen by me in June, 1887. He was a tall slim lad, and presented the characteristic physiognomy of a tubercular patient. The first thing he noticed was that the previous February he found that his voice was very easily fatigued, and that if he spoke much, even in a quiet way, he became slightly hoarse. When first seen by me, the slight hoarseness had developed into complete aphonia, which was due to tubercular infiltration of the inter-arytenoid folds; dysphagia was very marked, the pain being so severe that he was unable to take solid food; but fluids could be taken without great difficulty, cough was short and dry, and expectoration was small in quantity, but very viscid. Occasionally he suffered from sudden attacks of dyspnœa.

On examination of the throat, the mucous membrane of the pharynx, palate, and larynx, was very anæmic, while the margins of the pillars were of a bright red colour. The epiglottis was greatly indurated, and there was some thickening of the arytenoid mucous membrane. The sputa was sometimes free from tubercular bacilli, but the majority of specimens examined contained large numbers of these micro-organisms. The only indications of pulmonary tuberculosis were slight moist râles at the right apex in front, and a marked prolongation of expiration over the upper third of the right lung. The temperature was subnormal in the mornings, and in the evenings ranged from 101·5° to 102·8°.

To occupy time in describing the details of these two cases is unnecessary, as they appear to me, and as the drawings show them to be characteristic examples of primary tubercular laryngitis, with secondary pulmonary involvment. In both instances I had an opportunity of examining the larynx, previous to any pulmonary signs presenting themselves, but also in both cases a physical examination of the chest showed the lungs to be ultimately implicated, although only to a comparatively slight extent. These cases have been selected because they have stood the test of time.

The treatment adopted was in both cases precisely similar. The diet was carefully regulated, so as to give the patients food in a concentrated form, and in such conditions as to produce as little irritation as possible. The patients were kept in a warm moist atmosphere, and the air was impregnated with menthol, terebine, and eucalyptus. The principal local treatment was spraying the larynx with cocaine, and when sufficient anæsthesia was so produced, the larynx and pharynx were freely sprayed with a concentrated solution of iodoform in equal parts of alcohol and ether. This was repeated at first twice daily, and subsequently three times a day. The applications to begin with were made by me; but after a time, and with considerable trouble, I managed to teach a nurse to do the spraying in an efficient way. At first the patients complained a good deal of the irritation of the applications, but after a few days' use they experienced so much benefit from the spray that they were willing to have it used as frequently as I desired. Codeia combined with nepenthe was occasionally given to relieve cough, and the general treatment of tubercular laryngitis, such as the administration of cod-liver oil with creosote and coto bark, &c., &c., was carried out. In both instances the dysphagia became less pronounced; the voice improved in strength and tone, and the patients began to gain in weight.

I may say that I have employed the iodoform spray in the way indicated in a considerable number of cases of tubercular laryngitis, and in almost all of them considerable relief was experienced; but these are the only two in which a cure has been effected, and a long enough time has elapsed to permit the hope that it is permanent. The patients are now (1896) to appearance perfectly healthy men. The laryngeal condition in both cases is so much improved that it was very difficult to discover the remnants of the old lesion when I last examined the larynx. In fact, in the first case the only distortion is a puckering of the epiglottis, and an undue paleness of the mucous membrane over the left arytenoid cartilage.

It may be remarked that when the larynx is sprayed with the iodoform solution, the odour of the iodoform can be detected in the breath for fully six hours after the application is made. To be efficient the iodoform treatment must be adopted before ulceration of the mucous membrane has set in.

For a considerable time I was in great doubt as to the possibility of a tubercular laryngeal lesion undergoing a process of cure, and was rather disposed to look upon the laryngeal involvement as a very serious complication of a disease in which the prognosis was already most unfavourable. When tubercular laryngitis supervenes upon a well marked attack of phthisis pulmonalis both the laryngeal and the pulmonary lesions advance with great rapidity, and even temporary improvement is not to be looked for, and any measures of treatment are useless to ward off the rapidly fatal termination. But, on the other hand, should the tubercular lesion in the larynx be discovered early in the course of the disease, previous to the lungs being seriously involved, and active local treatment adopted without delay in a few cases a cure may be promoted, and in many instances considerable relief may be afforded to the sufferer. Within recent years I have come to believe that the prognosis in cases of primary, or apparently primary, tubercular laryngitis is not so unfavourable as is claimed by many writers on the subject, and I am pleased to know that this opinion is supported by the observations of several of our leading laryngologists. I, therefore think that the local treatment of tubercular laryngitis at the very earliest stage deserves the careful attention of the profession, and although in many instances we may fail to arrest the malady, we may succeed in retarding its progress and in alleviating much suffering.

CASE III.—*Epithelioma of the Left Tonsil, the Left Posterior Pillar, and the Uvula; no involvement of lymphatic gland; early diagnosis; immediate and complete removal by operation; no recurrence five and a half years after operation.*

Mr. A., aged 55 years, a farmer in Wigtonshire, consulted me in June, 1890, when he told me that for the last four weeks he had been suffering from a swelling in his throat, and pain in the left ear. I had seen him two years before, on account of a simple, but somewhat chronic attack of tonsillitis, from which he had completely recovered. On examination of the tumour in the throat, I found it to involve the upper third of the left tonsil, where it originated, as well as the posterior pillar, and the left side of the uvula.

From the appearance of the growth, I at once concluded that it was an epithelioma; but to make the diagnosis certain I immediately removed a portion for microscopic examination, and within twenty-four hours I completely excised the tumour (with the electric cautery), and with it a good part of the surrounding healthy tissue.

The patient made a good recovery, and no recurrence has taken place till now (January, 1896.)

CASE IV.—*Carcinoma of the Tonsil and Soft Palate; early diagnosis by aid of microscope; immediate and complete excision; good recovery; well four years after operation.*

Mrs. L., aged 51, was admitted into the Glasgow Royal Infirmary on 20th November, 1891, suffering from carcinoma of the left tonsil and soft palate.

The history of the case showed that fifteen weeks previous to admission the patient for the first time noticed that she had difficulty in swallowing, which soon became very painful, especially on taking hot food. She tried to treat herself for some time; but ultimately had to consult a doctor, who, on account of the acute inflammation and the formation of a kind of membrane, suspected the disease to be diphtheria, but did not pronounce an opinion as to its nature. On admission, the patient appeared fairly healthy, but stated that during the last three months she had been losing flesh and weight. She complained of little or no pain in the throat unless when swallowing, but of great pain at times in the left ear. This pain never affected her till after the throat symptoms had developed.

Examination of the throat showed the left tonsil to be swollen and ulcerated. The ulcer extended from the tonsil to the anterior pillar, and to the margin of the soft palate and uvula. There was not much enlargement of the tonsil, nor were the lymphatic glands involved. I suspected the tumour to be a carcinoma, and removed a small portion for microscopic examination. The tissue was cut and examined at once by my assistant, Dr. D. M'Kellar Dewar. Within half an hour, tracheotomy having been previously performed, I proceeded to excise the tonsil.

30th November, 1891.—A free incision was made with the electric cautery, and the tumour, together with a considerable portion of the surrounding healthy tissue, was removed through the mouth without any external incision.

The wound healed in about three weeks, and the patient is now well (January, 1896.)

In both cases of malignant disease of the tonsil, the operation consisted in cutting out the diseased part with the electric cautery knife, together with a considerable portion of surrounding healthy tissue. In the first case the patient refused to take chloroform, so I injected cocain solution under the mucous membrane before operating. The second operation was done under chloroform.

These two cases illustrate the advantage of early detection and complete excision of malignant growths.

I have long contended for the great value of recognising cancer as early as possible, under the belief that it is primarily a local disease, which, by complete eradication, may be prevented from invading the general system. The old belief that cancer is a constitutional affection is rapidly dying out, but while many surgeons of the present day are willing to admit the theory that cancer is primarily local, they do not act with the courage of their opinion.

In a discussion before the Glasgow Pathological and Clinical Society (*Transactions*, vol. ii, p. 272), I contended that cancer was primarily local, and urged the necessity for early diagnosis and prompt treatment. I said then (January, 1886), what I may repeat now, ten years after:—

"The opinion that cancer is incurable has arisen simply from want of success in treatment. Those who believe cancer to be a constitutional disease have recourse to the operation merely as a palliative, and justify it on the ground of the temporary relief it gives. I believe that operative treatment should be resorted to, not only for the relief of the patient, but also as a curative remedy. A man should not be allowed to die on the hypothesis that the disease from which he suffers is necessarily fatal. I should say that so long as the disease remains local in its manifestations, and is in a situation capable of being removed, the sooner the surgeon interferes the better."

"If we believe the disease to be primarily a local one, but local only for a short time, then the natural inference is that operative treatment should be limited to that period. I agree with Dr. Macewen when he says that delay in operating endangers the patient's life in three ways—(1) because his strength has diminished during the interval; (2) the operation is necessarily much more severe; and (3) because there is a danger of general dissemination of the disease."

Surgical treatment of malignant disease of the tonsil has been exceptionally unfortunate. Of the 144 cases of malignant disease of the tonsil which I have collected,[1] in only 56 was an operation performed. In the other cases the disease was too far advanced to encourage the surgeon to operate. In the tonsil cancer seems to spread with great rapidity, so that it is very rarely, indeed, that a case is presented where the surgeon can entertain a hope of removing the disease completely.

The difficulty in diagnosis cannot be too strongly enforced upon the attention; and, from the study of literature on the subject, and from my own experience, I am satisfied that a considerable number of the operations that have been performed have been unsuccessful on account of the disease not being recognised sufficiently early. In my monograph on malignant disease of the throat and nose, I deal with the statistics of the subject, and I have made the following remarks:—

"In carcinomatous disease cure is very rare. The most successful case I know of is one communicated to me by my colleague, Dr. William Macewen, of which the following is his short summary:—

"'W. P., aged 55 years, had right tonsil, large portion of pharynx, and portion of back of tongue removed through incision extending from angle of mouth to the angle of lower jaw on right side, 27th June, 1878. I saw him twelve years after in good health; I have not heard from him during the last two years, and I fear that he may be dead. He was 67 years of age when I saw him last.'"

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[1] *Malignant Disease of the Throat and Nose*, 1892, p. 190.

"Dr. Macewen also had another case of removal of an epithelioma of the tonsil, but the patient was only kept under observation for two years, during which he was well."

"Besides the cases just described, I find only four cases of cancer of the tonsil in which local recurrence did not take place; they are recorded by Quintin,[1] Fowler,[2] Mikulicz,[3] and myself. The patient operated upon by the surgeon first mentioned was reported to be free from disease two and a half years after excision of the growth."

"In Fowler's and Mikulicz's cases local recurrence did not occur, but carcinomatous disease attacked other parts. In the former case a very complete operation was performed through an external incision; the lingual and facial arteries were ligatured as well as the external jugular vein. After free removal of the tumour and affected glands no local recurrence happened, but the patient died from cancer of the stomach. Mikulicz's patient remained locally free for two years, when she died of cancerous disease elsewhere."

To these few successful cases I have to add the two cases recorded above.

Many cases have been recently recorded where the immediate result of operation has been favourable, but very few can be classed as cured—that is, where three years or more have elapsed without recurrence.

But while cases of cure of malignant disease of the tonsils are very rare, the disease is more common than is generally believed. The statement that malignant disease of the tonsils is rare, is due to the circumstance that, until within the last ten or twelve years, the cases were not recognised or recorded. For example, in Mr. Butlin's valuable work on sarcoma and carcinoma, published in 1882, only three cases of cancer of the tonsil are collected; but now, that more special notice is taken of diseases of the tonsils, considerably over two hundred cases have been published. It is evident, therefore, that the subject is one of much greater interest than has been generally admitted. When the belief prevailed that malignant disease seldom attacked the tonsil, there was a great danger of the serious nature of the malady being overlooked during the early stage, and of its being mistaken for some inflammatory affection of the gland. In 1892 I published ten cases of malignant disease of the tonsil, and since then I have seen several others, which I may bring before the Society at a future meeting.

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[1] *Annales de la Soc. de Méd. de Gand*, 1877.
[2] *Brooklyn Medical Journal*, September, 1888.
[3] *Deutsche Med. Wochenschrift*, No. 3, p. 33.

DEMONSTRATION ON THE RÖNTGEN RAYS.[1]

By JOHN MACINTYRE, M.B., F.R.S.E.

Dr. Macintyre first considered the physical aspects of the question as brought forward in Röntgen's original paper, and pointed out that at present we were apt to overlook the important work which Lénard and Hertz had done before the famous discoverer published his work. It had been shown before, by Lénard particularly, that in a well-exhausted vacuum tube something could be made to pass out of it through a very thin plate of aluminium, and that this something possessed actinic power. Röntgen had taken up the work at this point, and extended it in a most scientific way, the result being the application of a force which had been practically unknown to us before. He wished the students to remember, because of the misconceptions abroad, that the x rays did not mean photography alone. It was true that by means of a sensitised plate this force has been first and best made known to us. Any student of physics could see, however, that Röntgen had done something far better than this—viz., he had caused fluorescence to take place with certain substances, such as barium platino-cyanide, and magnesium platino-cyanide, when submitted to the action of the rays. In other words, while the new photography would prove of immense value in many ways not even yet anticipated, nevertheless the fact that the presence of these rays could be demonstrated in such a way as to be viewed by the human retina surpassed at present all other considerations. Dr. Macintyre said he would return to this aspect of the work further on. He would first of all speak of the physical aspect, next the apparatus required, with its practical application, and lastly, he would devote a little time to the experiments which he had been carrying out in the hope of showing that in surgical work at least direct vision would ultimately be more important than photography itself. In connection with the physical aspect the question naturally arose, what were these rays? Röntgen himself had suggested the possibility of longitudinal vibrations in the luminiferous ether; others were inclined to think they were simply vibrations at what might be called the violet end of the spectrum, or that part of the spectrum of greater refrangibility. It had even been suggested that they might have no resemblance to anything we knew about light, sound, or wave motion, probably consisting of the ultimate particles of matter of the ether itself moving in rectilineal streams. At present all such considerations were theoretical, but there were some important facts to notice which were not only interesting, but at present offered great obstacles to the best practical results. For example, they cannot be reflected, and all experiments so far in this direction, or refraction through prisms or lenses, had resulted in failure. As far as the lecturer had been able to gather, there was no indication that they produced movement; in his own experiments he found that the radiometer had not been acted upon in the slightest degree. Moreover, the test of a delicate thermopile failed to give evidence of any rise in temperature. Be this as it may, however, the fact remained that if a current of electricity were passed through the vacuum tube certain rays were generated wherever the cathodal torrent came in contact with matter placed in its course, and these were the *x* rays now exciting so much attention.

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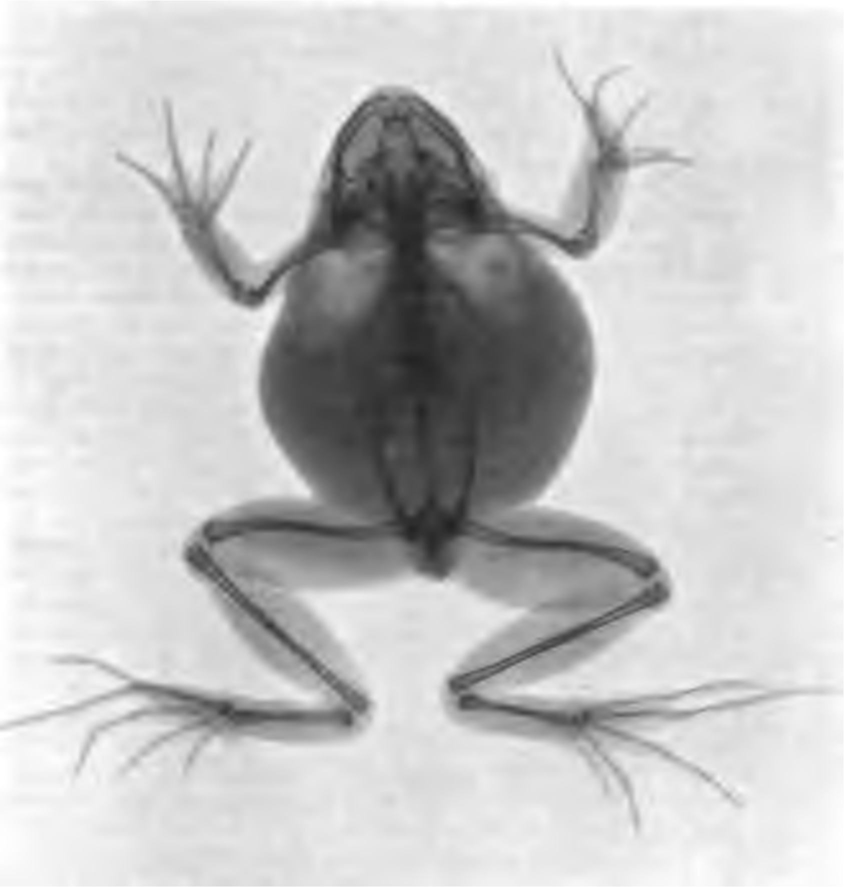
[1] Abstract of paper read at the Glasgow University Medico-Chirurgical Society Meeting on 10th March, 1896.

With regard to the apparatus required for photography, the first thing, of course, was the current. In his own experiments, Dr. Macintyre took it from the main, but a Groves' or Daniel's battery, or better still, a secondary cell giving the necessary voltage and ampere of current would suffice. In fact, for short exposures, or in taking a photograph at a bedside, a small portable battery is sufficient. The simplest way he could put it was to say that a written statement could be obtained from the makers of any coil, and the operator could easily get the necessary electrical force according to the instructions given. Dr. Macintyre at first used a Tesla coil, which increased the frequency and voltage or pressure while diminishing the current. In this way he had been able, with a small coil, to take fairly good photographs. The Tesla coil was not necessary, however, and all one had to do was to attach the terminals of the battery to the primary circuit of the induction coil, and the wires of the secondary coil were again attached to the terminals of the Crookes' tube. A good induction coil was therefore the second requisite in the apparatus, and one giving a 2 to 3 inch spark was sufficient, although he warned his audience against accepting this as a proper measurement of the power of a coil. If we placed the ends of the wires coming from the negative and positive poles of the induction coil near each other, sparks would pass from the one point to the other, but the air resisted the passage of the current. If, however, in a tube from which some air was taken the current was allowed to pass, less resistance would, of course, be offered; and this was the principle of the Geissler tube with which they were all familiar, and which was used generally to show the passage of a current and its effect on various substances placed therein. Crookes' great work had been in producing a higher vacuum in the tubes. One of the most beautiful examples of his work had been given by Dr. Bottomley, an expert in this work, who had exhausted some tubes so that only the one hundred and forty-seventh of one millionth part of one atmosphere was left inside of the tube. As the current in such a tube passed from the negative to the positive pole, a bluish light could be observed, and at that portion of the tube where the cathodal rays came in contact with the glass a greenish fluorescence was to be observed. A large number of experimentors were now at work in order to improve these tubes. Some of the German tubes were very good; Hicks had given an excellent tube; but Newton & Company had provided those with which he had got his best results.

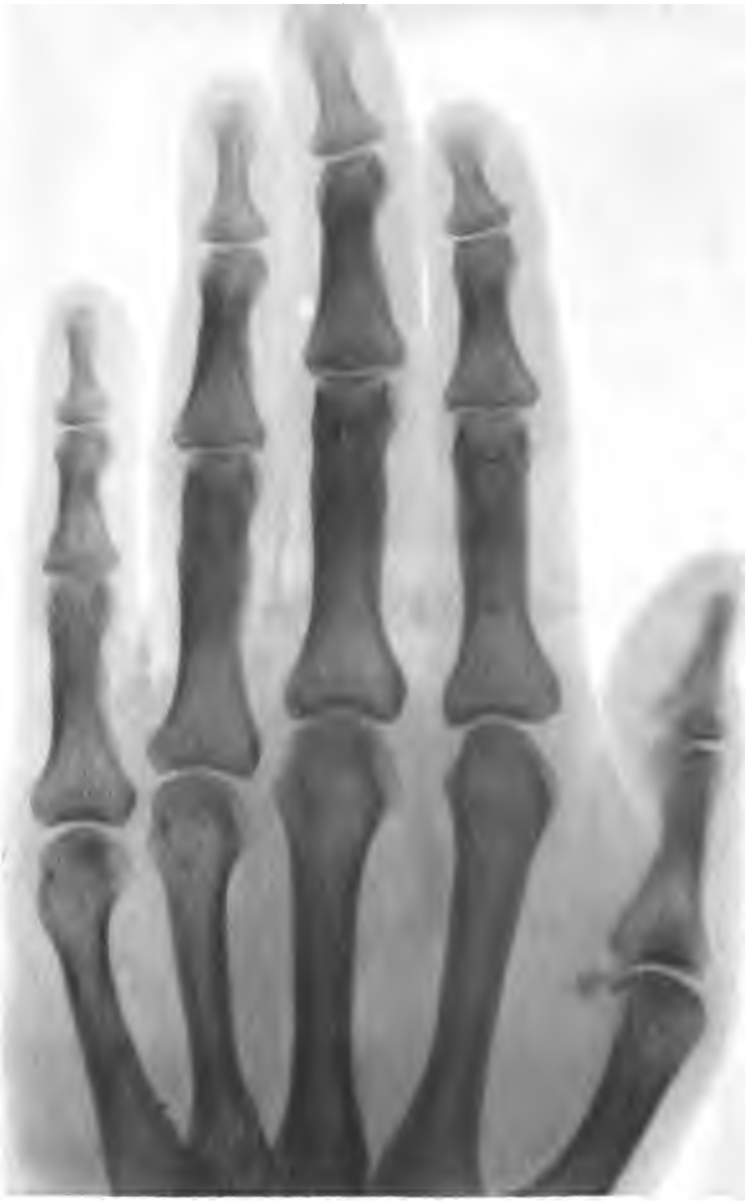
To photograph, we simply placed the fluorescent portion of Crookes' tube over the object, and under it the sensitised plate inside of a black envelope to protect it from the ordinary light of the room. The x rays passed through objects hitherto considered opaque, but this power of penetration was a matter of degree; it went through flesh quicker than bone, so that if the process were interrupted at the proper time an impression of the bones could easily enough be obtained. Dr. Macintyre next considered the best way to get sharp definition, and how to test the tube. He concluded by pointing out that the photography itself was simply a matter of development and printing —in other words, ordinary photographic work with which they were all familiar. A month ago it was considered a wonderful thing to be able to photograph the bones of the hand and foot, but now they had gone far beyond that. Personally, he had been able to photograph the extremities, and, in many cases, the intimate structure of the bone itself. From long exposures of about forty minutes, he had been able to reduce it in certain cases to forty seconds, and he showed on the screen photographs of the frog, fish, foot, hand, leg, knee, elbow-joint, &c. He next showed pathological lesions, including the discovery of foreign bodies (needles), and stated that he was pleased to be able to say that he had photographed the ribs and vertebræ straight through the body of an adult with sharp definition and good results. It was quite evident we had here a most valuable addition to our armamentarium in the hospital. (A few of these photographs, reproduced by Messrs. R. Gardner & Co., are attached herewith.) He had no doubt whatever that they would be able to photograph the whole of the skeleton, life size, and with such rapid exposures as to bring the whole work within practical surgical limits.

Dr. Macintyre then went on to consider the second and more interesting part of the work, viz., that by which we were able to see shadows of objects. He stated that, in his earliest experiments, he had great difficulty in obtaining the proper fluorescent salts, and this had given him unsatisfactory results at first. By coating a piece of glass with barium platino-cyanide, or better still, potassium platino-cyanide, he had at first obtained a distinct, though faintly, illuminated field of vision in which he could see shadows of pencils and other objects moving in front of the screen. Afterwards he made a better screen, and arranged his instrument in a binocular form. Salvioni, of Rome, who had been working on these lines, had used calcum sulphide and named it the cryptoscope, and as far as he knew this instrument would in the future—he would not say how soon or how long—largely replace photographic work. When he first obtained good results he saw distinctly some coins placed inside of a purse when the objects were placed between the Crookes' tube and the fluorescent screen. He had also been able to see shadows of forceps, scissors, &c., through a book containing upwards of 2,000 pages; dense mahogany 3 inches thick was easily seen through, and he could examine the bones of the wrist, arm, and also bones of the foot through the boot. He had been asked what was to be the practical result of these Röntgen rays. That question had already been so far answered. He did not think it a dream at all to say that we would in the future see through the deepest parts of the body. He had no doubt that the surgeons in the hospital, or it might be going to a bedside, in practice would be able to examine the fractures as they came in and see where the bones were broken, or from day to day look through the bandages and splints and see the progress towards union. It was in this sense that he had stated at the beginning of the



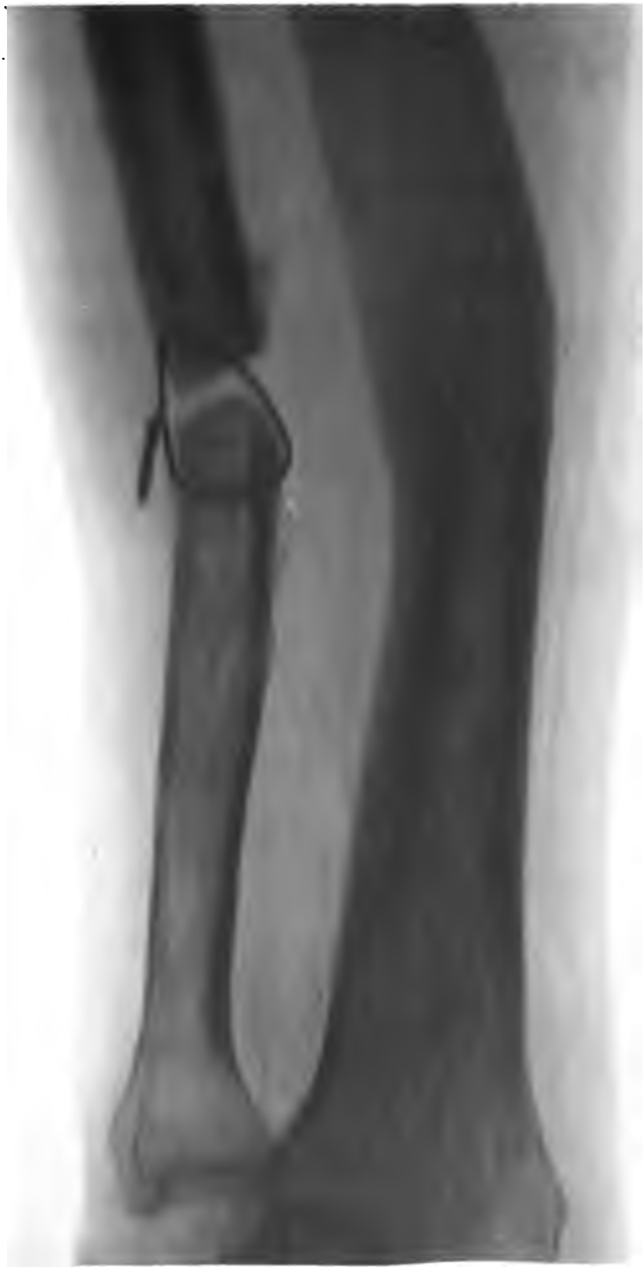
FROG.

40 SECONDS EXPOSURE.



HAND

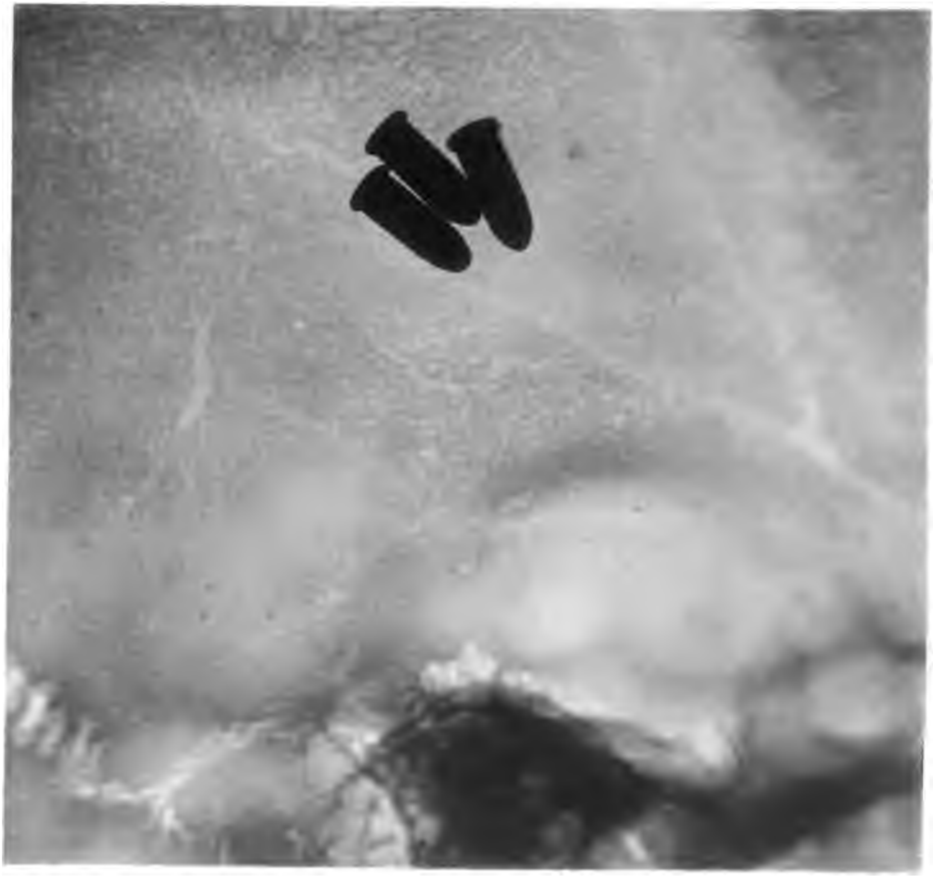
3 MINUTES EXPOSURE.



UNUNITED FRACTURE. FOREARM.

WITH WIRE SUTURE.

EXPOSURE 2½ MINUTES. DR. BARLOW'S CASE.



INTERIOR SKULL, INNER SURFACE,

SHOWING BULLETS PLACED INSIDE.

EXPOSURE 10 MINUTES.

demonstration that the x rays did not only mean new photography, but that they had a much wider significance to us as surgeons.

Dr. Macintyre, during the demonstration, showed a variety of Geissler and Crookes tubes, particularly those useful in the new photography. The different forms of batteries and induction coils were exhibited, and he demonstrated most of the things on the screen by means of a magic-lantern. He also showed his monocular and binocular cryptoscopes.

CORRESPONDENCE.

ON THE RELATION OF OUR HOSPITALS TO THE MEDICAL PROFESSION.

To the Editors of the "Glasgow Medical Journal."

DEAR SIRS,—The Annual Meeting of the Subscribers to the Glasgow Royal Infirmary gave rise as usual to some discussion in the newspapers, and this year, perhaps more than usual, the discussion touched upon principles rather than details.

It has often seemed to me that the *Glasgow Medical Journal* is the proper place for the discussion of the whole subject of hospital administration, and especially of the relation of the medical profession to the hospitals. It would at least be satisfactory if the medical profession could arrive at some clearly defined opinion on the subject. It is evident that, as things are at present, the medical practitioner has good reason to object to many things which the hospitals do. If the objections were clearly stated, and obtained the general support of the profession in the West of Scotland, a long step would be taken towards the removal of what is objectionable.

I cannot in any sense profess to be the mouthpiece of the medical practitioner, but the following reflections on the subject may perhaps serve as well as anything else to introduce a thorough discussion of the subject.

Mr. Maylard contends that hospitals should be under State or Municipal government, and this contention he supports on two grounds:—

(1) His first plea is that the equipment of hospitals is defective under our present system, owing to the insufficient supply of funds. I fancy the managers of the Victoria

Infirmary will be surprised to learn that their hospital is insufficiently equipped, and those who are acquainted with State and Municipal institutions in this country will doubt whether funds would be supplied more freely to State hospitals. What, *e.g.*, is the equipment of our Town's Hospital as compared with the Victoria Infirmary?

(2) His second plea is that the workers, who add to the health, success, and welfare of the whole city, have a right to be treated in hospital at the expense of the community. But why stop at hospitals? Should we not also say they have a right to be clothed, fed, and housed at the common expense, and, as we all add what we can to the health, success, and welfare of the city, have we not all the same rights? In discussing the "rights of man," we might come to the conclusion that all things are common property. But either fortunately or unfortunately, we are far from realising abstract principles, and in practice Mr. Maylard's principle requires much qualification before it can be adopted as a working arrangement of social or civic life.

The Lord Provost's objection to Mr. Maylard's proposal, however, is not one that can be upheld. He supports the present system of maintaining our hospitals because they would, if supported by the rates, be withdrawn from the sphere of charity. And he makes the curious assertion that "in other countries" (shall we say France and Germany?) the State supports the hospitals because, in these countries, Christian charity is not inculcated as it is here, and the poor and sick would not be attended to unless rates were levied. It is a sufficient answer to this to say, as Mr. Maylard seems to say, that hospitals "in other countries" are more efficient than ours. If rate-supported hospitals are better than those maintained by charity, then surely Sir James Bell should be the very first man to advocate an hospital tax. It can only be because he is unconvinced of this fact, or because he does not believe that greater efficiency and State support are related as effect and cause, that he advocates their support by charity.

But no one will maintain that it is good that suffering should exist in order that charity should be stimulated, yet that is really what the Lord Provost's plea comes to. It is well-known, and is indeed the very basis of the Charity Organisation Society, that the giving of charity, however beneficial to the giver, tends to injure the receiver. Alms should be given carefully. The best condition of society is certainly that in which charity—in the shape of almsgiving—is not needed. Charity, as a Christian impulse, will not be lessened thereby.

Accordingly, if we give alms in the shape of hospitals, Dr. Black is quite right in pleading that we should give them with circumspection, and only to cases in which self-help is impossible or exhausted. If we ask whether it is better that we should be able to claim hospital treatment as a right or should be forced to ask it as charity, I think there can be no doubt as to the answer. The question then would come to be "How are patients to acquire the right of admission to hospital?" Any one who has been in the habit of meeting workmen knows that when they subscribe to the infirmary—however small the sum—they consider that they have the right to claim admission. This should be put on a clear footing. "How much subscription should admit to hospital?" This subscription would then simply be a mode of "sickness assurance"—a variety of thrift, and might be made quite independent of any call on the rates.

But this would be far from a satisfactory arrangement. Cases of illness requiring treatment in hospital would constantly arise among those who had not paid the subscription. Are we to let them suffer for that neglect? In principle, no doubt, Dr. Black would say—"Yes, if they die it's their own fault!" But in practice, I fear, the principle would go to the wall, and the patients would be sent to be treated in the hospital they did nothing to maintain. We feel that it would be wrong to exclude any necessitous case. The hospital in fact should be open to illness quite irrespective of the individual affected.

This is the principle which is acted upon within the hospital. Everyone is treated, not with the consideration due to his rank or station, but simply with that required by the disease. The rain falls on just and unjust alike. This fact is at present, and will for some time be, deterrent to those who are rich enough to procure special attendance and care at home. They will prefer to remain out of hospital. But in the case of infectious diseases we have seen how rapidly the repugnance to treatment in hospital has been overcome. Even wealthy people frequently send their patients to hospital—not so much to prevent spread of infection as because it is recognised that in hospital the patients are constantly under medical supervision, and under nurses who are specially trained and experienced. This is seen also, in the case of general diseases, in the growth of private hospitals and nursing establishments. The repugnance to hospitals in fact is rapidly dying out, and will altogether disappear as it is realised that a hospital is always better manned and equipped for the combat with disease than a private house can possibly be. If this be so, then all—both rich and poor alike—will naturally gravitate towards the hospitals, and the hospitals must, in such a state of things, of necessity become State institutions.

There has dawned on the public mind a recognition of the importance of public health, and this can hardly stop with the case of infectious diseases, or the abolition of smoke, or the improvement of systems of sewage. Every case of sickness should be known to the proper authorities, and the health of the whole community should be a constant care to the State.

At present we seem a long way from such a universal health organisation, but it may be forced upon us sooner than we might imagine, and one of the causes that may bring it to an acute stage is already at work—viz., the injustice done to the medical practitioner by the present hospital system.

The "ingenium perfervidum" of Dr. Campbell Black carries him too far in his denunciation of our hospital system, and we need not agree with him in all his objections. But there are distinctly two ways in which the medical practitioner is both directly and indirectly injured:—

(1) At present a hospital appointment carries with it no obligation to withdraw from general medical practice. But the public believe that the medical men who hold hospital appointments are superior to those who do not. The hospital physician accordingly has an undue advantage over the unattached general practitioner by virtue of his office quite independently of his merits. And this applies not merely to the "chiefs" in the infirmaries, but down through all grades to the youngest tyro. It may be said, indeed, that, whether in hospital or out of it, each man will ultimately reach the position for which he is fit, but the less deserving men are handicapped in the competition the better.

(2) But the great, and indeed the dangerous and menacing injustice to medical practitioners is the gratuitous treatment of the sick. In regard to this, hospitals are in a curious position. To say that they are in a transition stage is a mere truism. Humanity is always in a state of transition. "All is flowing, nothing stays." But I think it is now more evident than it has been heretofore that we are rapidly passing from a time when hospitals existed only for the poor, to a time when they will exist for all. And if it is shown to be for the public benefit that sickness should be treated at the charge of the State, the medical profession cannot oppose it. The heart of the profession has always promoted whatever is of benefit to the public health. This has been done in the case of

infectious diseases, and the loss of income thereby to the medical profession must reach a considerable amount. If, however, treatment of disease at hospitals and dispensaries is to become universal, or even common, what must the medical profession do?

No one can contemplate without dismay an extension of the system of chéapening medical attendance until the general practitioner can compete with the (hypothetically) superior, and at the same time uncharged treatment at hospital, his sole auxiliary being the objection on the part of his patients to taking anything for nothing—an old feeling that is rather dormant at present. Nor can we regard as possible any plan by which all practitioners could become attached to the hospitals. To let men act in rotation would to a great extent forfeit the value to science of hospital appointments. Their value consists in enabling men of special fitness to conduct researches in disease over a long space of time. It is only in this way that progress in the science of medicine has hitherto been made, or, indeed, can ever be made. No doubt unfit men are sometimes appointed, but no human institutions are perfect, and we need not sacrifice the good because it has some alloy of evil. The only solution of the difficulty—and indeed of the difficulties of our profession in general—seems to me to lie in the direction of making medicine a State department, as the church was at one time, as education is now to a certain extent, and as post and telegraph are altogether. If a teacher or a postman is necessary in every parish, so is a physician, and the State should see that provision is made, sufficient both in quantity and quality, to meet the necessities of each district—sufficient and yet not superabundant. A very small beginning has been already made in this direction by the appointment of medical officers of public health—this, again we may note, involving further deductions from the general practitioner's income.

By such an arrangement, of course, competition, so far as it is an unworthy competition, would at once cease between general practitioners, and between them and those connected with the hospitals. If the great majority of patients suffering from serious disease were in hospital, the number of practitioners attached to the hospitals would necessarily be greatly increased, and there would be no such inducements as at present exist to make hospital appointments exclusive. Even now it would be for the interest of science in this country were the physicians, surgeons, pathologists, &c., attached to our hospitals enormously increased in number. The way in which much valuable material is lost to science in many of our large general hospitals is simply grievous to any one who has the advance of medicine at heart, and the whole want is the want of organisation. Were the hospitals State institutions, this want would be at once rectified, and the interests of science, as well as those of the profession, would be satisfactorily provided for.

Various objections naturally suggest themselves to such an arrangement.

On the part of the profession freedom of competition would be interfered with. Men would not suddenly attain to lucrative practice by popular arts. Advance would be slow, and strictly the reward of merit. The element of chance, which has such a fascination for the successful, would be excluded. The whole profession would be subject to strict laws, which are only meagrely represented now by what is called medical etiquette.

On the part of the public, again, freedom of choice would be interfered with. The medical officer of a district would only visit beyond it on strictly defined conditions. At present, freedom of choice is limited by the fee of the practitioner, and by distance. In country districts there is practically no freedom of choice. The same limitations might be made to apply under an arrangement into districts, and, with recognised consultants, the public would soon recognise that they were better served than when "left to the freedom of their own will."

The details of a scheme by which the medical profession would become a branch of the Civil Service, without hardship to existing interests, and with enormous benefit to the country, could easily be worked out. And such a scheme would put hospitals in their right place, both with regard to the public and with regard to the medical profession; would give stability and the highest possibilities of progress to that profession; would secure that no individual in the country should be without medical relief, and would do more than anything else to stamp out disease in its first beginnings by making a complete registration of disease for the first time possible.

You will say I have wandered far from the subject of hospitals, but it is perhaps the case that the reform of the abuses of hospitals can only be part of some larger scheme. And to let things go on as they are is merely to drift into that condition of "darkest night" that "precedes the dawn," because the night has become unendurable and a dawn is necessary.—I am, &c.,

J. K. KELLY.

26 BLYTHSWOOD SQUARE, *February*, *1896*.

To the Editors of the "Glasgow Medical Journal."

GENTLEMEN,—The *Ceylon Independent* of the 14th inst. reproduced the article on "Ceylon as a Winter Resort," published in your issue of last December, in which I regret to see the writer has mentioned the names of a few European practitioners of medicine in some of the principal towns in Ceylon. Most medical men disapprove of anything savouring of advertisement of qualified practitioners in any way, but the manner in which the writer of the article mentions the names of a few practitioners is particularly objectionable, owing to his use of the term, "native practitioners."

I trust you will give me the opportunity of saying that most of the medical practitioners in the towns mentioned have British qualifications, both from universities and the examining bodies.

The writer's statement of the cost of living at the hotels is most erroneous. £20 (nearly equivalent to 400 rupees) per month is what it would cost one person to live comfortably in one of the hotels mentioned.—Faithfully yours,

V. C. J. VANDERSTRAATEN, L.F.P. & S. GLAS., &C.

MASKELIYA, CEYLON, *15th February, 1896.*

CURRENT TOPICS.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—At the meeting held in the Faculty Hall on 26th February, Sir John Williams, Bart., London, gave his address as Honorary President of the Society, the subject being "A Historical Sketch of Gynæcology during the last Fifty Years" (see page 241). At its close the President, Dr. G. A. Turner, referred to the fact that Sir John Williams had been for a short time a student of medicine in Glasgow, and said it was all the more interesting on that account to have him now occupying the position of their Honorary President. He then called upon Professor Gairdner to propose a formal vote of thanks. The Society afterwards entertained Sir John Williams at dinner in the Windsor Hotel, the President, Dr. G. A. Turner, being in the chair, and Drs. Miller and Jardine acting as croupiers.

ANDERSON'S COLLEGE MEDICAL SCHOOL.—In succession to Dr. William L. Reid, Dr. John Edgar has been appointed to the Chair of Midwifery in Anderson's College. Dr. Edgar has been well known for some years as one of the younger lecturers in midwifery, having been assistant to Dr. Stirton at St. Mungo's College, and we feel sure his election will be favourably regarded by the profession.

THIRD INTERNATIONAL CONGRESS OF DERMATOLOGY.—The Third International Congress of Dermatology will be held in London this year from 4th to 8th August inclusive. The meetings will take place in the Examination Hall of the Royal College of Physicians and Surgeons, on the Victoria embankment. Separate sections will be established for dermatology and syphilis, the meetings of these being held simultaneously. The scientific portion of the programme is practically complete, and the large number of British as well as foreign physicians who have testified their intention of being present ensures the success of the Congress, of which Mr. Jonathan Hutchinson is President. The fee for membership, which entitles to the volume of transactions to be issued, is £1, payable to the Hon. Treasurer, Mr. Malcolm Morris, 8 Harley Street, London, W.

The Secretary-General, to whom all communications may be addressed, is Dr. J. J. Pringle, 23 Lower Seymour Street, London, W.

DR. J. S. BILLINGS having completed his monumental Index Catalogue, recently demitted his office as Assistant-Surgeon-General, U.S. Army, and accepted the Chair of Hygiene in the University of Philadelphia. He has since been offered, and has agreed to take, the office of Superintendent-in-Chief and Executive Officer of a great public library about to be established in New York by the consolidation of the Astor, the Lenox, and the Tilden Trusts. The amalgamated libraries will contain 300,000 volumes, and an endowment of some three million dollars, besides two valuable sites and buildings. The loss to medicine, and especially to preventive medicine, involved in this change is great; but Dr. Billings will leave the mark of his magnificent powers of organisation on this great library to the advantage for all time of those who repair to it. He enters on his duties in October, but will, in June, attend an International Conference on the Indexing of Scientific Literature to be held in London.

JOURNALISTIC NOTES.—The *Intercolonial Medical Journal of Australasia* has arisen from the amalgamation of the *Australian Medical Journal* and the *Intercolonial Journal of Medicine and Surgery*, and the aim is to make the new periodical thoroughly federal in character. The publishers are Stillwell & Co., of Melbourne, and there are editors in all parts of the colony. The subscription is £1, 1s. per annum.

Science Progress, a monthly review of current scientific investigation (2s. 6d. monthly), enters upon its third year, and is, according to the *Pall Mall Gazette*, "the representative of advanced science."

Food and Sanitation of 29th February, 1896, contains what we can only designate as a pungent article on the *Lancet's* favourable report of Valentine's Meat Juice. This journal by no means agrees with the opinion of the *Lancet* on this matter, and the following may be taken as a sample of its style:—"As regards stimulating power the substance has scarcely that of healthy urine, which, in chemical composition, has many features in common with it. The Guacho who requires a stimulant drinks Nature's refuse fluid; the *Lancet* recommends the profession to humbug patients," . . . and so on; but we have said enough to indicate the style of *Food and Sanitation* and its methods of warfare. Of these we leave our readers to judge for themselves.

Journals of Pediatrics.—We are not aware that in Great Britain any journal specially devoted to diseases of children is published; on the Continent there are several. Under the circumstances New York is fortunate in having two publications devoted to this specialty. The *Archives of Pediatrics*, a monthly journal, has now entered upon its thirteenth year, and has in the past done excellent work. Last January *Pediatrics*, a semi-monthly journal, made its bow to the medical public. In addition to these two journals, there is published in the United States the *Archives of Gynæcology and Pediatrics*, so that the children are not neglected medically in America.

NEW DRUGS, INSTRUMENTS, &C.—*The British American Ball Nozzle Company*, of 52 Oxford Street, London, W., have sent us a new injection nozzle, which we think practitioners will find to be very valuable for rectal or vaginal douches. Instead of being sharp pointed, the nozzle is wide at the outlet, and into the wide orifice a circular plug, fixed by an elastic spring, is fixed, which only allows the flow to escape at the margins of the plug. The effect is that a globular spray of water is produced, instead of a straight stream, and the cleansing effect on diseased surfaces must be very great. The Ball Nozzle Company supply a douching syringe complete of a very convenient pattern; but the novelty is the nozzle, which we would advise our readers to try, as we think it will satisfy them.

The "Uj Hunyadi," Limited, have sent us specimens of a natural aperient water, from the Uj Hunyadi springs at Buda Pest, which they propose to call "Apenta" Water. We have made arrangements for testing the value of the water as a remedial agent, and hope soon to report upon it.

Messrs. Burroughs, Wellcome & Co. send us specimens of tabloids for preparing the hypodermic solutions for the production of local anæsthesia, according to the method of Schleich, of Berlin. The following are the particulars supplied by the firm as to their composition and mode of use:—

"Owing to the proneness of anæsthetic solutions to decompose even when antiseptic precautions are taken, it has been suggested to us that it would be desirable to prepare tabloids, representing the following formulæ:—

No. 1, 'Strong'—

Cocaine hydrochlor., . . .	1-5 grain.
Morphia hydrochlor., . .	1-40 „
Sodium chloride, . . .	1-5 „

One tabloid dissolved in 100 minims of water yields the 'strong' solution.

No. 2, 'Normal'—

Cocaine hydrochlor., . . .	1-10 grain.
Morphia hydrochlor., . . .	1-40 „
Sodium chloride, . . .	1-5 „

One tabloid dissolved in 100 minims of water yields the 'normal' solution.

No. 3, 'Weak'—

Cocaine hydrochlor., . . .	1-100 grain.
Morphia hydrochlor., . . .	1-40 „
Sodium chloride, . . .	1-5 „

One tabloid dissolved in 100 minims of water yields the 'weak' solution.

"The 'normal' strength is that usually employed, and it is adapted to nearly every variety of minor surgical operations, the 'weak' being employed for infiltration into deep tissues after superficial anæsthesia has been produced by No. 2. No. 1

is used for very sensitive areas only. Each strength is supplied in non-actinic glass tubes, containing twelve tabloids in each.

"About 40 minims of solution are required to each three or four cubic centimetres of tissue, and it should be evenly distributed over the area. The appearance of the operating field will be that of a white mass raised high above the skin and swollen with injected solution. The anæsthetic effect lasts some twenty minutes, fresh infiltrations prolonging the period for hours."

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1895-96.

MEETING IV.—22ND NOVEMBER, 1895.

The President, DR. W. L. REID, *in the Chair.*

I.—GUMMA OF THE IRIS.

BY DR. ROWAN.

Dr. Rowan showed a patient with gumma of the iris.

II.—A SYPHILITIC FAMILY HISTORY.

BY DR. C. O. HAWTHORNE.

The three individuals[1] who form the subject of this communication are the only surviving members of the family to which they belong. The father has been dead for many years, and the mother died a few months ago. No history of any event suggesting specific disease in either parent could be obtained, though the inherited taint is prominently displayed in their children. The family record, as obtained from the mother, is as follows:—

First pregnancy.—A girl, born at full time, eighteen months after marriage, and now 25 years of age. Has always enjoyed good health, with the exception that two years ago she suffered from "a mist over her eyes" for two months and was in consequence unable to continue her occupation as a domestic servant. There are now distinct evidences of a former interstitial keratitis, which, in the left cornea, has left a small but distinct opaque spot. The teeth are distinctive. The upper central incisors are fairly well-shaped, but are separated by a slight interval, and each presents an extremely well-marked notch along its free edge. No other evidence of syphilis.

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[1] The patients were shown to the Society.

Second pregnancy.—A male child, born at full time, but died on the ninth day from "water in the head."

Third pregnancy.—A male child, born at full time, but died when 18 months old, also from "water in the head."

Fourth pregnancy.—Miscarried at fourth month.

Fifth pregnancy.—Male, still surviving, æt. 18 years. General health has always been poor. There are characteristic teeth, periosteal thickenings, an enlarged spleen, and prominent frontal eminences, with other symptoms alluded to in the sequel.

Sixth pregnancy.—Male, still surviving, æt. 17 years. A strong and vigorous youth, free from all evidences of inherited taint, and with a general robust appearance which makes him contrast very favourably with his weakly-looking brother. The upper central incisors are well formed, but are placed in the jaw in a peculiar fashion, each having, as it were, been rotated on its long axis, so that a considerable interval is left between them, and their anterior surfaces look directly outwards, the posterior surfaces facing one another. It is of course to be remembered that this lad is not yet free from all risk, as is indicated by the postponement of interstitial keratitis in the case of his sister until she had reached the age of 23 years.

Seventh pregnancy.—A male, still-born at full time, two years after the birth of the last mentioned.

The most interesting features in the above statement are those which indicate the degree of action of the syphilitic poison in the various chapters of the family history. And the action of the poison, it will be observed, has been very irregular. Thus, to take only the surviving members of the family, the first pregnancy issues in a healthy girl, in whom the evidences of inherited taint are confined to interstitial keratitis and malformation of the permanent incisors, whilst the boy, born seven years later, presents wide-spread characteristics of severe inherited syphilis and marked depreciation of his general health, and he is succeeded by a lad on whom apparently the specific poison has not been able to exert any injurious influence. And if we accept the presumption that the unfortunate incidents with regard to the other pregnancies were due to syphilis, this irregularity in the action of the virus is still further emphasised, more especially in the issue of the seventh pregnancy in a still-born child following the birth of the one member of the family whose escape has apparently been complete. Such a series of events is in direct conflict with the generally accepted view that it is invariably the products of the earlier pregnancies which suffer most severely in a syphilitic family, and that gradually the influence of the poison becomes diluted, until at last it dies out entirely. No doubt the general rule is as here stated; but that there are striking exceptions to the rule has been pointed out by Mr. Hutchinson,[1] and the present record agrees with his teaching.

The case of the elder boy has features of interest apart from its relation to the general family history. He first came under observation when 14 years of age, at which time he had been complaining for eighteen months or more of attacks of frontal headache, associated with feverish phenomena, *i. e.*, a sensation of chilliness, followed by burning heat of the skin, and subsequently sweating. According to the mother's statement the urine on these occasions was at times "thick, like coffee," at other times "red, like blood," whilst between the febrile attacks it was natural in colour and quite clear. In short, the account of the symptoms directly suggested the existence of paroxysmal hæmoglobinuria. The lad was very distinctly anæmic, with a sallow tint of the skin, and presented the signs of inherited specific disease already described. The blood, except for evidences of anæmia, was normal. Though he remained under observation for some weeks, none of the attacks described by the mother occurred until, on one occasion, after being out of doors for some time, he complained of feeling cold, and the temperature rose to 103°, the normal point being regained in the course of a few hours, and the fall accompanied by free sweating. On this occasion, and also on two or three other occasions, there was "slight" albumen in the urine, but the presence of blood was never detected. The single observed febrile attack was in exact correspondence with those mild attacks of paroxysmal hæmoglobinuria described by Bristowe,[2] Hilton Fagge,[3] and Grainger Stewart.[4] Though the evidence, in consequence of the non-occurrence of hæmoglobinuria whilst under observation, is not quite complete, the history, as given by the mother, and the febrile event and occasional albuminuria just described, appear to make it at least extremely probable that the boy must be regarded as the subject of a paroxysmal hæmoglobinuria, or at least of a paroxysmal albuminuria, which may possibly result from decomposition of hæmoglobin.[1] This aspect of the case is of extreme interest, in view of the occasional occurrence of hæmoglobinuria as a result of acquired syphilis. Jaksch[2] states that this is a frequent event in severe cases of syphilis, and a very marked case has been described by Koster.[3] Quite recently Churton[4] has had experience of the same association. In all these, however, the syphilis had been acquired, but Lawford Knaggs[5] has recorded one case of a child, the subject of inherited syphilis, in whom hæmoglobinuria appeared some five years after the undoubtedly specific phenomena. To judge from the very scanty references to the subject, it would seem that paroxysmal hæmoglobinuria must be a very unusual occurrence in inherited syphilis, and hence it appears desirable to place the present case on record.

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[1] Hutchinson, *Syphilis*, p. 70.

[2] Bristowe, *The Theory and Practice of Medicine* (seventh edition), p. 884.

[3] Fagge, *The Principles and Practice of Medicine* (second edition), vol. ii, p. 589.

[4] Grainger Stewart, *Quain's Dictionary of Medicine* (first edition), p. 564.

Dr. Toward said that the patient, with little or no signs of inherited syphilis, had a peculiar arrangement of the upper teeth—the upper incisors being crowded together, this being probably due to imperfect development of the inter-maxillary bone. He thought, also, one of the temporary molars still persisted, although the patient was 18 years old.

Mr. H. E. Clark said, in discussing these cases, it was important to know which parent was primarily infected, and the time which elapsed between the infection and marriage. In his opinion, the female patient shown presented more characteristics of hereditary syphilis than Dr. Hawthorne spoke of, but there was no doubt that she had fewer indications than the boy who was born later. The teeth showed characteristic notching, they were small in size, and rounded at the angles.

Dr. W. L. Reid said in these cases it was usual to find the first child most affected, and alleviation following under the curative influence of time.

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[1] Taylor, *Practice of Medicine* (fourth edition), p. 815.

[2] V. Jaksch, *Clinical Diagnosis*, p. 272.

[3] Koster, *British Medical Journal*, "Epitome of Current Literature," 13th May, 1893.

[4] Churton, *British Medical Journal*, 16th November, 1895, p. 1239.

[5] Lawford Knaggs, *British Medical Journal*, 16th November, 1895, p. 1239.

III.—APROSEXIA, CONVULSIONS, AND ADENITIS DEPENDENT ON PATHOLOGICAL CHANGES IN THE FAUCIAL, LINGUAL, AND PHARYNGEAL TONSILS.

By Dr. Walker Downie.

Dr. Downie read a paper on the above subject, which appears as an original article at p. 19.

Dr. R. M. Buchanan said he had made some observations on a series of cases of epilepsy in boys and girls, both at the Children's Hospital and the Western Infirmary. The average age of the children was 10 years, and they suffered from an excessive amount of adenoid tissue in the nose and pharynx. As there was some reason to suppose that this condition was a possible etiological factor in the production of the fits, Dr. Downie was asked to treat the patients, and the treatment was followed by satisfactory results.

Dr. Newman said the communication made to the Society was one of considerable interest from a pathological standpoint, and one of great importance clinically. Every general practitioner was constantly coming across cases of hypertrophy of the pharyngeal tonsil, but the condition was not always recognised in the early stage, and the morbid process was allowed to develop until serious symptoms, such as asthma, deformity of the chest, severe headaches, alterations in the voice, or interference with hearing, showed only too clearly that the adenoid tissue was increasing rapidly in bulk. Since the days of William Hunter the existence of adenoid tissue in the pharyngeal vault had been recognised, but the morbid development of that lymphoid structure, and the consequences of its presence, had not been fully realised till Meyer, of Copenhagen, published his classical paper on the subject.

The most characteristic symptom of the disease was the peculiar facial expression, most noticeable in young children, and when well marked was sufficient for a diagnosis. And undoubtedly, of all the many consequences resulting from hypertrophy of the pharyngeal tonsil, the most serious and persistent were the ear-complications—indeed, it might safely be said that in the majority of cases of ear trouble in young children the deafness is caused by adenoids. Nasal obstruction, causing mouth breathing, was also a serious danger to health. The nose was apt to be looked upon as a very simple organ, but this was not so. Not only does it preside over the sense of smell, and give certain resonance to the voice, but it also has very important functions to perform in connection with respiration. When the nostrils become diseased or are obstructed from any cause, not only is the lower respiratory tract injured, but the individual is rendered more liable to infective material, introduced by inspired air. It may be safely asserted that almost the whole of the water which is expired by a healthy person is taken from the nasal passages, and not from the trachea or lungs, so, when the nostrils are obstructed, the lower air-passages, in place of receiving clean, warm air, fully charged with watery vapour, the air is almost at the temperature and humidity of the atmosphere, which also has not been freed from its floating particles. In this way the more vulnerable portions of the air-passages—the larynx, trachea, bronchi, and lungs—are exposed to disease.

In the latter portion of his paper Dr. Downie called the attention of the Society to the circumstance that adenitis involving the glands in the neck was frequently associated with morbid changes in the pharyngeal and lingual tonsils, and he believed the adenitis to be due to the absorption of micro-organisms or their products by the diseased adenoid tissue in the pharynx or in the mouth, as a result of their own morbid condition. Dr. Newman did not agree with the position taken up by Dr. Downie, although he was quite willing to admit the circumstance that in cases of hypertrophy of the adenoid tissues the interference with health was very great, and apparently out of proportion to the morbid process observed. Dr. Newman thought that the infection of glands in the neck was not due so much to the morbid changes in the adenoid tissue leading to undue absorption as to the circumstance that nasal obstruction prevented the proper filtration process and the destruction of organisms in the inspired air. It was well known that air in the lower air-passages, or even in the larynx when the patient breathed through the nostrils, was perfectly free from micro-organisms. He had found, for example, that the mucus from the trachea of a healthy animal was quite sterile, and it was a well known fact that in cases of hæmorrhagic infarction of the lungs the blood which fills the air-spaces, and which must have come in contact with the air in the alveoli, may remain sterile for any length of time. He had no doubt that in health the nasal mucous membrane, and the mucus secreted by it had a power of arresting or of destroying the germs of infection; but when the nostrils became the seat of disease, then the adenoid structures were brought in contact with infective material, which they absorbed.

Epileptiform seizures were in children not uncommonly associated with hypertrophy of the pharyngeal tonsil. Dr.

Newman had seen several instances of this, but had not come to any conclusion as to their relationship to one another.

Aprosexia, or the want of ability to concentrate the mind on a subject for a length of time, is a symptom not limited to cases of adenoid hypertrophy, and although coincident with it, as in Guye's case, and in those brought forward by Dr. Downie, the relationship of cause and effect is not yet clear. In almost all cases of marked nasal obstruction the mental or other cerebral conditions are interfered with more or less at times. J. A. M'Bride has recorded a case of psychical epilepsy; instances of chorea, neurasthenia, and various forms of reflex, spasmodic, and other diseases of the nervous system have been found associated with, and cured by the removal of, hypertrophied adenoid tissue, but the cases recorded are as yet too few to permit us to give or accept an explanation. Dr. Downie did not refer in his paper to a condition which occasionally may be due to the irritation of adenoids. In young children, just at the age when adenoids are most common, a trouble which causes them much annoyance is Nycturia. Several such cases came under Dr. Newman's observation, where a cure was effected by the treatment of the nasal obstruction. In one instance a child, who had been in the habit of "wetting the bed" regularly, also had indications of nasal obstruction due to adenoids; these were removed, and very soon afterwards the Nycturia ceased.

With respect to the lingual tonsil, it was a source of considerable trouble; hypertrophy of its tissue was nearly always overlooked, and so acted as a continual cause of irritation. By leaving the condition of the lingual tonsil out of account, not infrequently chronic cases of pharyngeal catarrh, even although properly treated, failed to recover.

Dr. James H. Nicoll said he had been asked to take part in discussing the subject of Dr. Downie's paper, and he had prepared a paper on the subject (see p. 29). To his mind the question of primary importance was not the connection of enlarged glands in the neck with hypertrophic adenoid tissue in the naso-pharynx, but rather are not these chronic enlargements primarily tubercular? He was glad Dr. Downie was treating enlarged glands of the neck by attacking adenoid growths. In his opinion all cases of bilateral strumous enlargement of cervical glands should be treated by removing the lymphoid tissue.

Dr. Newman said enlarged glands in the neck were, in many cases, due to absorption, not from adenoid tissue, but from carious and tubercular teeth.

MEETING V.—6TH DECEMBER, 1895.

The President, DR. W. L. REID, *in the Chair.*

I.—RUPTURE OF THE DESCENDING AORTA WITH REMARKABLE QUIESCENCE OF SYMPTOMS FOR A TIME.

BY DR. FINLAYSON.

T. S., aged 49, cattleman at the harbour, was admitted to the Western Infirmary on 21st January, 1889, with a history that eight weeks before he was thrown down by a bullock while hauling it by the horns, and sustained an injury to the ribs. The man himself, regarding the injury as a fracture of the ribs, had a piece of sticking plaster applied to his side, and resumed his work on the second day after the occurrence. He walked home after the accident, and had no hæmoptysis. On 5th January he became breathless, had pain at the lower part of the left side, and went to bed. In the course of a week he coughed, and brought up a large quantity of red blood, and this continued till two days before admission.

On the night of admission, 21st January, he had violent cough, and brought up a large quantity of blood, and continued to bring up bloody sputa till his death, three days after admission. Owing to the patient's condition no special examination could be made, but râles were noted in the chest; the temperature was 102·8° F., and fell to and remained at from 100° F. to 101° F. afterwards.

The *post-mortem* examination was made by Dr. Rutherfurd, who found the right ventricle dilated. The aortic valves were tested by the water-test, and seemed to be incompetent without obvious cause, other than slight thickening of the valves and dilatation of the aorta above the valves.

The ninth rib on the right side indicated a fracture near its middle, which had become united by two bridges of callus. The right lung weighed 32 oz., the left 53 oz., the excessive weight being due to infiltration of the lung with a great quantity of blood. The left lung was separated from the diaphragm by about a pint of black blood-clot.

A tumour, the size of a hen's egg, projected behind from the aorta, and suggested aneurysm, but when this was taken out the supposed aneurysm was simply a portion of the blood-clot.

On slitting up the aorta there was no pouching of its walls, but there was found a distinct clean tear on the smooth surface of the aorta internally. There was no very marked disease of the aorta.

This patient had been a drunken man for years, but appeared in good health up till the accident which fractured his rib and ruptured his aorta. Dr. Finlayson remarked on the long quiescence of the symptoms after such a grave injury as was actually found.

II.—ANEURYSM OF THE ARCH OF AORTA WITH DIASTOLIC MURMUR, BUT APPARENTLY COMPETENT VALVES.

By Dr. Finlayson.

J. M'D., aged 40, harbour labourer, was admitted to the Western Infirmary, 10th June, 1889. He died on 30th September of the same year. He was treated in the Glasgow Royal Infirmary by Dr. Gemmell, from 10th till 28th March, 1888, for acute pneumonia, and at that time there was no abnormality detected in the heart.

He was also under treatment by Dr. Robertson in the Glasgow Royal Infirmary from 23rd April till 29th May, 1889, suffering from "cardiac valvular disease." On 1st May there was noted "a distinct murmur after second sound in the aortic area," and on 25th May "murmur after the second sound much less distinct." On admission to the Western Infirmary a few days later, he suffered from breathlessness and pain across chest, and had dropsy and albuminuria There was no history of rheumatism. The symptoms were said to be of nine months' duration. There was a history of severe strain, five years before, sustained while supporting a long heavy box which tended to fall on him. He was not off work on the day of the strain, nor did he bring up any blood. A lump appeared in the groin and burst, and the mark still existed showing where the abscess had burst. This abscess was alleged to have come in consequence of the strain.

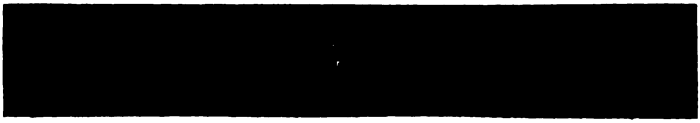
He had an enlarged heart, heaving impulse, double aortic murmur, and water hammer pulse.

On 23rd June the diastolic murmur was noted as being very variable in character, sometimes quite distinct, and again barely appreciable; he still suffered from anasarca and orthopnœa.

On 19th July it was noted he spat up a little blood three days ago, yesterday 5 or 6 oz. There was friction on the right side; the condition was regarded as due to an embolism of the lung.

A remarkable feature of the case was his great breathlessness that came and went, and he had a peculiar pulse which behaved as if alternate beats were lost. When the beats were missed the breathing became bad, and he felt oppressed. It was not a Cheyne-Stokes respiration, but suggestive of it. At the time the pulse altered there seemed to be a beat lost at the heart also. The pulse rate was thus double at one time as compared with what it was shortly after.

Sphygmographic tracings were taken both when the breathing became bad and when it was righting itself. The accompanying tracing shows three beats at the usual rate, followed by four beats with nearly double the interval between them. When the slowing of the pulse occurred breathlessness supervened.



30th September.—Dropsy and weakness worse. Before death typical Cheyne-Stokes respiration appeared. The diagnosis arrived at was aneurysm, or rupture of aortic valves, but no definite signs of aneurysm were made out.

At the *post-mortem* examination the heart was found enlarged. The aortic valves were tested by the water test and did not let the water through, but in looking in there seemed to be a small aperture, and the curtains were slightly dilated, but only a small pouch not amounting to an aneurysm. There was a small aneurysm at the origin of the innominate, and another in the descending thoracic aorta, at the posterior wall, at the level of the bifurcation of the trachea, 1½ inch in diameter. There were thrombi in the right auricle which accounted for the hæmorrhagic infarctions in the lungs.

Here we have a case of aneurysm with aortic valves apparently competent, as tested by water, yet associated during life with a diastolic murmur, although some teach that in thoracic aneurysm the diastolic murmur always denotes implication of the valves; but Dr. Finlayson held with those who believe that a diastolic murmur, in cases of aneurysm, can be explained apart from this lesion. Is this method of the pathologists of testing the valves satisfactory? In a case of Bright's disease of the kidneys he had reported a marked diastolic murmur without any apparent incompetency of the valves, so that pathologists may well be asked to seriously consider the validity of their present test.

During life the condition as to blood pressure in the aorta is very different from that present in applying the water test —the blood pressure is very much higher; and here it is interesting to note that Dr. Robertson also found a distinct diastolic murmur in this patient present at one time and at another so indistinct as to be scarcely recognisable. The sphygmographic tracing probably shows some of the effects of this variation in pressure.

In Aberdeen, Dr. Finlayson saw lately, in the pathological department there, the apparatus used by Dr. Hamilton for testing the valves of the heart, which is described in the first volume of his *Pathology.* By this method air is forced in instead of water, and the pressure can be varied at will.

Dr. Robertson, in discussing the first case, said although the aorta, at the point of rupture, appeared to be healthy, yet, if a portion had been excised and submitted to microscopic examination, some change might have been found to account for the rupture from strain. This man was a heavy drinker, and it is well-known that this habit induces atheromatous changes. The survival might be explained by supposing the rupture to have been very minute; then, on getting about, the force of the current widened the rupture, and led to a large effusion of blood and ultimate death. He was sorry not to have known the second case was coming up, as he might have looked up the records of the case when the man was under his care. He regards the water test as insufficient, as the pressure of the water test is not comparable with the pressure of the blood. He thought that in this case, although the valves were competent as tested by water, reflux took place through the valves on account of the dilatation of the aorta and the increased pressure of blood.

Dr. Rutherfurd said although he made the *post-mortem* examination, he could not charge his memory at this distant date with the facts of the case; the rupture was near the level of the diaphragm, and it was suggested at the time, owing to the difficulty of accounting for the mechanism of the rupture, that it was due to a drag of the diaphragm on the aorta.

Dr. Gairdner, in discussing the case, briefly described another case of aneurysm, associated with double aortic murmur and incompetent valves, and also showed the specimens; there was a small aneurysm on the back wall of the aorta which communicated by a circular opening with the aorta, the aneurysm projected backward and impinged on the trachea, and caused difficulty of breathing; it ruptured into the trachea, and only a small quantity of blood got away, and shortly before death. The man had a rheumatic attack many years before, and the existence of the aortic murmurs, V.S. and V.D., were accounted for by rheumatic endocarditis, but with symptoms indicating something more — *i.e.*, tumour or aneurysm, dulness beneath the manubrium sterni being suspected. It was not easy to say how far the murmurs were due to aortic incompetence or to aneurysm. He is not sure if he agrees with Dr. Finlayson that increased pressure would produce incompetence where less pressure failed, but thinks increased pressure would rather close the valves.

Dr. Coats said in making examination he lets the water drop from a height so as to get strong pressure, varying the height as may be desired. If the aortic valves are competent with a slight pressure, they are also with greater pressure, the curtains being pressed together and closed more completely. On the whole the water test is a valuable one, as the valves can be inspected while the aorta is filled with water. He did not know Hamilton's apparatus, but it seemed to him that air would pass through where water would not, so the test cannot be called a satisfactory one in considering the reflux of blood. The water test is of no use with the auriculo ventricular valves, and if Hamilton's test applies to these it must be of great advantage.

Dr. Finlayson, in his reply, said the remarks made by Dr. Coats did not apply to cases of dilatation of the aorta; the dilatation is certain to be greater during certain phases of cardiac action, and thus dilatation comes to be important in connection with the influence of pressure on the valves which, while incompetent with greater pressure, are not with less pressure. He hoped his remarks on Hamilton's apparatus would lead to a trial of the method.

III.—THE USE OF TETANUS ANTITOXIN IN CASES OF TETANUS.

By Dr. Macartney.

Dr. Macartney read a paper on the use of tetanus antitoxin in two cases of tetanus, and the subject was discussed by Mr. H. E. Clark, Drs. Renton, Hawthorne, and Newman.

IV.—PERFORATING ULCER OF THE STOMACH.

By Dr. Dalziel.

A. B., aged 26, had suffered for some years from symptoms of gastric ulceration. When visiting in Glasgow she was seized with violent abdominal pain, and was seen by Drs. Snodgrass and Adamson, who diagnosed rupture of some viscus. She was seen by me three hours after the attack, and then suffered from profound collapse; skin cold and voice husky. Pulse about 130, and temperature 103° F. Abdomen retracted and tender to pressure in the right iliac fossa and up the ascending colon. Pain was also complained of at the root of the neck and in the left shoulder. There was little doubt that some viscus had ruptured, though which could not be definitely ascertained, especially in the absence of her previous history, which was not obtained till afterwards.

The patient was immediately removed to the M'Alpine Nursing Home, and laparotomy performed 5½ hours after the attack.

The incision was made by the outer edge of the right rectus muscle in view of the seat of pain. On opening the peritoneum a quantity of yellow turbid fluid was seen to be flowing down along the ascending colon. The incision was extended upwards, and the source of the fluid found to be a round aperture in the anterior wall of the stomach close to the pyloric band. This aperture measured about a quarter of an inch in diameter, and had a punched out appearance with thickened margins. The ulcer was removed by an elliptical incision in the long axis of the viscus, as it seemed to implicate the pylorus. Chronic irritation had led to considerable thickening of the tissues, so that it was not possible to invert the peritoneum as usual—the mucous membrane was therefore stitched separately and thereafter the margins of the wound accurately approximated with fine silk sutures, and a convenient fold of peritoneum stitched over it.

Stomach contents were found over the right side of the abdomen and in the pelvis. By careful sponging and the use of aseptic water the peritoneum was cleansed, a glass drainage tube left in the pouch of Douglas, and the abdominal wound stitched in layers.

The patient made a perfect and uneventful recovery, with the exception of some flatulent distension of the stomach, at the end of a fortnight

At the end of two months the patient returned home able to digest with comfort an ordinary diet, which she had not done without pain for some years.

The following extract from the Museum Catalogue briefly describes the portion removed by operation:—"The preparation is a diamond-shaped piece of the stomach-wall, in which there is a nearly circular opening, measuring about 3 mm. in diameter. It comprises the whole thickness of the wall, as if the piece had been punched out. At the lower edge, a piece of mucous membrane protrudes, which is really displaced, being a portion of the mucous membrane dissected during the operation, and sticking up so as to become fixed in process of hardening."

Dr. Adamson said—I wish briefly to refer to two of the many interesting points which this case presented, keeping to the clinical and diagnostic aspects only.

1. *The Behaviour of the Liver Dulness.*—In cases of suspected perforation of an air-containing viscus in the abdomen, there may be alteration in the liver dulness, as is well known, from complete to partial obliteration of it, its place being taken by a tympanitic note. It was not so in this case. Absolute dulness was found along the right costal margin, and extended upwards to nearly the normal extent. I observed, however, that while the abdomen (one hour and a half after the sudden onset of the illness) seemed then remarkably flat, the percussion note just below the liver dulness was highly resonant—more so, in fact, than the flatness of the abdomen, and apparent absence of any great amount of gas *in* the intestines, would have led one to expect.

The distinction, however, was a fine one, but this point—viz., the quality of the percussion note relative to the apparent state of the intestines, is worth noting, and might, in other cases, be more suggestive in forming a diagnosis. The main point, however, which this case illustrates, is that as regards the alteration of liver dulness, we cannot, as is well known, from the absence of any such alteration, exclude the possibility of the perforation of an air-containing viscus; while, on the other hand, the positive affirmation of the characteristic alteration is of the greatest value, in the very early stages of the case, before tympanitic distension has set in.

2. *The Distribution of the Pain.*—I omit reference to the abdominal pain altogether. I was struck at the time with the complaint of pain—marked and emphatic complaint—in practically the whole thorax in front, and especially in the clavicular and supra-clavicular regions, and also in the scapular region and back. At the time the explanation did not occur to me, and I was inclined to pass over a symptom which seemed to confuse the diagnosis, whereas, I believe, accurate interpretation of it would have strengthened the conclusions eventually arrived at. The obvious explanation is that these pains were "referred pains," and the connections with the splanchnic nerves with the lower six intercostal nerves through

the dorsal sympathetic ganglia, and in the spinal segments, need only be mentioned to indicate the reason of the pain in the lower six intercostal spaces. In the same way the clavicular and supra-clavicular pains are explained when we recollect the relations that exist between the phrenic nerves and the descending superficial cutaneous branches of the cervical plexus, the latter coming from the fourth cervical, the phrenic from the fourth and fifth. The violent irritation of the upper abdominal zone, by the escape of stomach contents, so energetically stimulated the terminal phrenic filaments that an overflow of stimulus centrally was referred to the cutaneous positions indicated.

In future cases the presence of this pain might well be included as a minor strengthening factor—rather than as it was with me at the time, a disturbing one—in arriving at a diagnosis.

Dr. Middleton congratulated Dr. Dalziel on the success of his operation, and remarked that the success was largely contributed to by the speed with which the diagnosis had been made. He had been interested by the remarks of Dr. Adamson on the symptoms of gastric rupture, but he thought that, in those cases which survived the accident for some time, the symptoms were not always such as could be relied upon in the way of diagnosis. In this connection, he referred to a case which had been recently sent into his wards, as one of left basal pleuro-pneumonia with peritonitis, a diagnosis that he had confirmed. In that case, as time went on, the .pleuro-pulmonary signs seemed to spread upwards and even to the right side, and pericarditis also was suspected, while the peritoneal signs gradually concentrated themselves in the right iliac region. The girl died after ten days' illness, and examination revealed a large sub-diaphragmatic abscess, arising from perforation of a gastric ulcer, of which no history could be obtained. There was no pericarditis, no pneumonia, and only a trace of pleurisy. In addition, there was a large abscess in the right iliac region, without any connecting channel between the two abscesses.

Dr. Renton also congratulated Dr. Dalziel on what he regarded as the first successful case of the kind in Scotland. In cases of rupture of the stomach, the patient when seen is usually collapsed, and the feeling against operation is great. He had seen three cases of rupture of the stomach where operation was recommended but not accepted. He was pleased with Dr. Adamson's explanation of the pain, but the same pain sometimes occurred in intense flatulence. Such a case he had seen with the late Dr. Leishman, who relieved the condition by passing a trocar.

Dr. Newman said perforation of the stomach was one of those conditions which was most disastrous in its results, unless recognised at once and promptly treated by immediate suture. Dr. Dalziel was to be congratulated on the successful result of his treatment, which was doubtless due to the rapid diagnosis, and the promptitude with which the operation was performed. Dr. Newman said that in most instances of perforating ulcer of the stomach he had seen, the ulcer was situated at the pyloric end, and on the posterior wall of the viscus, and was therefore readily accessible by an incision in the middle line. The case mentioned by Dr. Middleton had been sent into Dr. Newman's ward, but although there were evidences of acute abdominal disease, the facts of the case were so complicated, and the patient's general condition so bad, that an operation was not considered advisable. In this case the perforating ulcer had no doubt been present for a considerable time, and while it had eaten through the walls of the stomach, the viscus had formed adhesions with neighbouring structures, and so actual rupture into the general peritoneal cavity had been delayed. In some instances, even after leakage of the gastric contents, the perforation may become sealed by glueing of the stomach to neighbouring parts, and so the symptoms of general peritonitis may be masked and indefinite, as in Dr. Middleton's case, in place of being well defined, as in that of Dr. Dalziel's. The cases of recovery of ruptured gastric ulcer, in which, after laparotomy, the perforation was found and sutured are very few. Mr. W. H. Bennett London, Mr. J. H. Morse, of Norwich, and Mr. Jowers, of Brighton, have published successful cases. Dr. Kriege also records a case of recovery where seventeen hours elapsed between the onset of the symptoms of perforation and the operation.

Dr. Coats said he was pleased to see a beginning in this kind of treatment in Glasgow. He had made *post-mortems* in many cases and found small perforations of the stomach. The symptoms do not arise from the perforation, but from the stomach contents present in the peritoneal cavity, and the symptoms point to the iliac region rather than to the stomach.

V.—MICROSCOPIC SPECIMENS.

By Dr. John Love.

Dr. John Love showed microscopic specimens of diabetic and traumatic peripheral neuritis.

REVIEWS.

Epidemic Ophthalmia. By SYDNEY STEPHENSON, M.B., F.R.C.S.E. Edinburgh and London: Young J. Pentland. 1895.

MANY medical books are published which should never see the light of day, because they are nothing more nor less than compilations of the opinions and views of others. There are some would-be authors who make up their minds to write on a particular subject; they read on the subject all that is within easy reach, publish what they remember of these studies in book form, and serve out the hash to the professional public. In the volume before us, however, we have proof of a powerful intellect at work on a most interesting subject. Here, at any rate, we have evidence of an original mind throwing light, and we may say individuality, on some old ophthalmic problems. Dr. Stephenson's book is in all respects most satisfactory, and indeed is an important contribution to ophthalmology from its clinical side. In fact, we question if so good a clinical monograph has appeared in British ophthalmology since, about fifteen or more years ago, Priestly Smith published his book on glaucoma. We remember well how Priestly Smith's views were sneered at by some. Dr. Stephenson's work, however, is not likely to be despised by any. There is, perhaps, nothing startingly new in it, its chief merits being the fresh discussion of some old problems in the most recent light, and a careful comparison of old and new theories with observed clinical data. Fortunately, the author has an unequalled field for research in the Hanwell Ophthalmic School, to which he is surgeon, and the excellent use he has made of his opportunities is clearly shown in the pages under review.

Under "Epidemic Ophthalmia" he includes:—(1) Muco-purulent or catarrhal ophthalmia; (2) purulent ophthalmia; (3) diphtheritic ophthalmia; (4) acute trachoma. He also discusses, at considerable length, that condition to which the name of "Folliculosis" has been given. This he believes, or rather we may say proves, to be quite distinct from trachoma, in no way depending on it, and not, as was formerly supposed, rendering a patient liable to an attack of trachoma. So also muco-purulent ophthalmia is a totally distinct entity from the purulent variety.

It is more than interesting to see how the author carefully traces the origin and extension by contact of certain outbreaks of ophthalmia. His work in this respect reminds us of that of a medical officer of health tracing out the source of some infectious epidemic. Stephenson conclusively proves that such outbreaks of ophthalmia are unquestionably due to want of proper isolation, and one of the chief objects of his book is to indicate the various methods by which contagion is carried, and the means which ought to be taken for prevention. Prophylaxis is quite as important as the active treatment of those already diseased.

As was to be expected, Stephenson's work chiefly deals with epidemic ophthalmia as occurring in young persons of school age. Apart from purulent conjunctivitis, children are the chief subjects of the various forms of epidemic ophthalmia, and, therefore, this book should be read by all who have to do with the care of children's eyesight. It goes without saying that we recommend it to all headmasters, to medical officers of schools, and to all members of school boards. Indeed, the questions which a perusal of this volume opens are extremly wide and interesting. There can be no doubt that, from an economic point of view, it is a matter of first importance to do everything that is possible to preserve the sight of young persons. A child sent into the world with defective eyesight is handicapped in the struggle of life, and may, in addition to his own sufferings, become a charge to others. Yet the question as to where and how such patients are to be treated is not so easily answered. To begin with, such patients as are the subject of contagious eye diseases are scarcely proper subjects to be treated at an eye hospital, any more than is a small-pox or typhus patient a fit subject to be treated at a general hospital. No doubt, in dealing with eye patients there is no risk to life, but there is now no question that the admission to the wards of certain patients is a danger to the sight of others.

Nowadays almost no eye hospital will admit cases of trachoma to their wards. In this they act rightly. But then these patients are allowed to wander about, giving the disease to their relatives and neighbours. Moreover, such cases can never be very efficiently treated in the acute stage as out-door patients. There are methods of treatment, giving excellent results, which can only be applied to in-door patients. Such cases, therefore, as pointed out by Stephenson, require special hospital accommodation wherein they may be isolated and receive the attention which their condition demands.

But this is not all. Our author shows that muco-purulent ophthalmia is also a contagious and dangerous disease. According to him, and in this from our own clinical observation we entirely agree with him, the typical example of these cases is the catarrhal ophthalmia following measles, often associated with vaginal discharge. Patients of this class require careful treatment, and, Stephenson thinks, and no doubt correctly, absolute isolation. That is the difficulty. Means for isolation cannot, certainly so far as we know, be found in any institution in Scotland, and probably in England can only be obtained at Hanwell. Further, in Scotland, as regards house patients, we believe that the only really charitable institution for the treatment of eye diseases is the Edinburgh Royal Infirmary. All the others, in their in-door departments, are worked largely on the principle of provident dispensaries. Those who subscribe to such institutions have a prior claim to their benefits, and consequently children are apt to be excluded as much as possible to make room for contributors.

There are few duties more important than attention to the sight of the rising generation. For having brought this duty so prominently before his professional brethren we have to thank Dr. Stephenson. He has pointed out a large field of work which here, at anyrate, is almost entirely neglected, and which ought to be taken up by our school boards in conjunction with the authorities of our eye hospitals or sick children's infirmaries.

We notice one curious blunder. The author attributes to Murchison the differentiation of typhus and typhoid. That was not first done by Murchison, but by the late Dr. Perry, who was physician to the fever wards in the Glasgow Royal Infirmary, and whose son is a highly respected practitioner in our midst.

On the Geographical Distribution of Tropical Diseases in Africa, with an Appendix on a New Method of Illustrating the Geographical Distribution of Disease. By R. W. Felkin, M.D., F.R.S.E., F.R.G.S. With Table and Map. Edinburgh: William F. Clay. 1895.

This little book consists of (1) a paper prepared at the request of the African Ethnological Congress which assembled at Chicago in 1893, and which was afterwards published in the *Proceedings of the Royal Physical Society of Edinburgh*, vol. xii, part 2; and (2) a short paper read before the Congress of Hygiene and Demography at Budapest in 1894.

The second paper is simply explanatory of the map and table which the book contains, and which are worthy of special mention. They illustrate by a new and ingenious method the geographical distribution and intensity of disease in the various parts of Africa.

Of the seventy-five pages comprising the first paper, fifty are devoted to an account of the climatology of Africa, and of the physical conditions which govern its peculiarities, and which affect the prevalence of disease. For this purpose, after a general review of the whole subject, the author divides the Continent into eight distinct regions, and describes them from the point of view of health and disease, indicating the special tropical diseases which are met with in each area. This part of the work is admirably done, and can be cordially recommended as a useful guide to any one going out to Africa. The remainder of the paper is occupied with brief sketches of the special diseases of Africa, but these are not so reliable as the rest of the book, and would be better either left out altogether or carefully brought up to date. Dr. Felkin concludes with stating it as his "definite opinion that, as in India, so in Africa, the progress of medicine and hygiene will before long conquer most of the obstacles to the civilisation of that Continent."

A Pictorial Atlas of Skin Diseases and Syphilitic Affections, from Specimens in the Museum of the St. Louis Hospital, Paris. Edited and Annotated by J. J. PRINGLE, M.B., F.R.C.P. Parts II and III London: The Rebman Publishing Co., Limited. 1895-96.

IN our issue for August, 1895, we gave a full notice of Part I of this excellent atlas, and to that notice we refer our readers for an account of its origin. We then expressed the opinion that if the succeeding parts were equal to the first, the completed work was likely to form one of the most valuable of our dermatological atlases. Parts II and III have now been issued, and we think our readers, who know the work, will agree with us when we say that the artistic merit of the plates, and the interest of the letterpress, are quite up to that of the first part. Among the subjects illustrated in the parts now before us, are lupus erythematosus; hypertrophic rosacea of the forehead; circinate papulo-squamous syphilides; xanthoma planum et tuberosum; tertiary syphilitic ulceration of the tongue; dermatitis herpetiformis; syphilitic gummata; and disseminated epithelioma of the face. We have again to express our approbation of the method of explaining the coloured plates by means of lettered woodcuts in the text, and to compliment Mr. Pringle on the value of his annotations. We feel sure that no dermatologist or clinical physician will ever regret adding the atlas to his library.

In my City Garden. By "GEORGE UMBER." Illustrations by WILLIAM FINDLAY. Paisley and London: Alexander Gardner. 1895.

THE title of this work in the review pages of a medical magazine might readily enough lead the reader to suppose that he was about to peruse a criticism of a work on materia medica. It is not so, however. The book with this title is not a medical work at all, but a volume of literary sketches, partly narrative, partly speculative, which might fittingly enough be classed along with those works which have come to be known as the literature of the "kail-yard," a literature which the writing of Barrie, Ian Maclaren and others has made popular. Such writing may be designated the apotheosis of the common-place, and it may be doubted whether it will live. Our reason for noticing what is, in our opinion, a contribution to this class of literature, is that it comes from the pen of a worthy Glasgow practitioner, Dr. William Findlay, of Dennistoun, who has occupied the leisure moments of a busy professional life in this excellent way, and who has already a literary reputation. On the whole Dr. Findlay has accomplished his difficult task, that of idealising and giving interest to the commonplace incidents of suburban life, with great success, and at places his style, we think, is equal to that of Barrie or Watson. The tone of the book is perhaps unduly sombre, and the writer's tendency to introspection and melancholy memories becomes at times monotonous and even tiresome. But here and there all this is relieved by touches of rare humour and genuine pathos. There are fourteen sketches in the book—not all of equal merit in our view, and sometimes, if realistic and true to nature, somewhat wanting in artistic grace and finish, as, for example, when in the Bairns' Burns' Anniversary, the youngest celebrant vomits his haggis and currant wine. We experienced an odd kind of feeling when we read this, and a sense of the incident marring what was otherwise a well done sketch. "The Kitchen Meeting" and "Uncle Venner's Reminiscence" are as good as anything of the kind we have read. A number of the illustrations by the author's artist son show great promise.

The Diseases of Children, Medical and Surgical. By HENRY ASHBY, M.D. Lond., F.R.C.P., and G. A. WRIGHT, B.A. Oxon., F.R.C.S. Eng. Third Edition. London: Longmans, Green & Co. 1896.

THE excellence of this book is sufficiently borne testimony to by the appearance of the third edition within three years from the date of the appearance of the second, and we content ourselves by simply informing our readers of its publication. The whole work has been thoroughly revised, and the sections on Infant Feeding, Anæmia, and Chronic Heart Disease have been almost entirely re-written. Considerable additions have also been made to the surgical part, and the book has been enlarged by over fifty pages, fourteen new woodcuts having been added.

The Medical Annual and Practitioners' Index for 1896. (Fourteenth Year.) Bristol: John Wright & Co.

THIS volume is quite up to its predecessors in the amount of information which it contains, although perhaps appearing somewhat late in the year. This is not to be wondered at, however, considering the fact that every attempt has been made to keep it thoroughly up to date, even to the publication of an article on the New Photography. The illustrations in the volume are well executed.

The Year-Book of Treatment for 1896. London: Cassell & Co., Limited.

A TWELFTH section has been added on the subject of Tropical Diseases by Dr. Patrick Manson, and Dr. Hale White contributes that on Diseases of the Stomach, Intestines, Liver, &c., otherwise there is not any material change in the plan of the work, which continues to merit the confidence of the profession.

The Phonographic Record of Clinical Teaching and Medical Science. London: Sir Isaac Pitman & Sons.

THE second volume of this journal began in January, and the number for that month contained the following articles:—"The Treatment of Facial Erysipelas with Ice Bags," by Dr. M. Mitchell Bird; "Points Determining the Selection of Climate in Phthisis," by Dr. Huggard; "Problems in Practical Diagnosis—IV: Brain, or Spinal Cord?" by Dr. Gowers.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

SURGERY.

By HENRY RUTHERFURD, M.B.

Congenital Dislocation of the Hip.—Hoffa discusses the results of 112 operations on 82 patients. Of the 82 patients, 7 died; of the 7 deaths, 4 directly resulted from the operation, 3 were in young patients: and Hoffa ascribes the fatal result to the duration of the narcosis, loss of blood, and shock. In these cases extensive division of muscles was practised, and their occurrence has led him to limit the division of muscles as much as possible, or to do without it altogether. The fourth case was in a girl of 14, who developed signs of iodoform poisoning, and died in about twenty-four hours.

His last 47 cases ran a perfectly satisfactory course, and the points in procedure to which he attributes importance in securing this are—perfection of asepsis, rapidity with avoidance of exposure and chilling, special care in administration of chloroform, and the use of sterile gauze for the tamponade, instead of iodoform gauze. The wounds he prefers not to stitch, but to pack at the operation, and some days later to bring together with compresses.

The object of the operation must be something less than a complete *restitutio ad integrum*, and this is true both as regards the position of the limb and its mobility. It is usually convenient to make the new cotyloid cavity somewhat in front of the normal position, and also higher. The smallness of the head, and the angle that the neck forms with the shaft, the atrophy of the limb from disease contribute with the position of the new articulation to a shortening of the limb as a whole. The antero-posterior curvature of the neck, with the smallness of the head, require a certain amount of inward rotation to secure stability of the new joint. The smallness of the head requires a proportionately deep excavation of the acetabulum, and this itself limits the amount of flexion. Abduction is also limited.

But besides the structure of the new joint, there has to be considered the condition of the muscles. The waddling gait, long attributed merely to the slipping of the femur head on the pelvis, was shown by Trendelenburg to be due to the atrophy resulting from the dislocation in two muscles, the gluteus medius and minimus. It is not to be expected, then, that the full result can be obtained immediately after operation, however good the operative result; the functional result must depend largely on the results of after-treatment by exercises, massage, &c.

In 9 of the author's cases ankylosis resulted. This was due in all the cases but one to suppuration. It is to be noted that unilateral ankylosis is not an absolute disadvantage. In one case where it occurred on both sides, resection of the femur at the junction of neck and great trochanter was done, so as to establish a false joint on one side.

In no case has he known of ankylosis developing as a late result, nor have there been any contractures requiring consideration.

No reluxation backwards has been observed, but in 8 cases reluxation, or transposition, as he prefers to call it, has taken place forwards. This is to be prevented by deeper excavation of the acetabulum, and the formation of a sharp anterior wall. This reluxation forwards, however, gives a result which is by no means very bad; the head rests on the anterior fibres of the capsule in front, and the anterior superior spine of the ilium above, and does not slip up and down.

In contradiction of his earlier expressed opinion that all the muscles about the hip were shortened, he now agrees with Lorenz that this is not so. As a matter of fact, the gluteus medius and minimus are rather elongated (by stretching over the displaced head). The maximus is shortened, so are the adductors and the long muscles running between pelvis and leg. Here Hoffa is in agreement with Lorenz.

The incision which Hoffa recommends is practically the same as that of Lorenz—namely, behind the tensor vaginæ, and in front of the gluteus medius. The anterior incision is apt to lead to flexure contracture, the posterior involves damage to the glutei.

The contractured anterior fibres of the capsule are thus easily exposed. They are divided (*a*) in the length of the neck, (*b*) upwards, and (*c*), if necessary, downwards, at right angles to the first incision (*a*).

Next comes the excavation of the acetabulum. It must be made deep, with well-marked overhanging upper edge. The original cavity is often in large part filled up or covered over by the adherent lower wall of the capsule; this must be incised and turned back with the elevator.

Reposition of the head can usually be effected in young children without much difficulty—in proportion to the age the difficulty increases; still Hoffa is at one with Lorenz in maintaining that there need be, as a rule, no division of muscles; their resistance is got over by continuous extension for some time before the operation, and forcible extension at the operation by mechanical apparatus.

Abnormal shape of the head is not commonly of any importance as resisting reduction.—(*Langenbeck's Archiv*, Bd. 51, Hft. 1.)

Pyloric Obstruction.—Haberkant has studied the results of a large number of cases where operations have been done for this condition, grouping them according to the nature of the operation—pylorectomy, gastroenterostomy, or pyloroplasty—and analysing the results in reference to the indications for operation. The records extend from 1883 to 1894.

I. PYLORECTOMY.

	RECOVERED.	DIED.
For carcinoma, ...	117	140
For ulcer or cicatricial stricture . . .	30	20
For sarcoma, myoma, or tumour in the neighbourhood, ...	5	—
Indications not given, ...	24	23
	176	183

The total number of resections, typical and atypical, was 359, giving a mortality of 51·1 per cent.

Billroth reported, up to 1890, a mortality of 53·6 per cent; Schede, up to 1893, a mortality of 46·1 per cent; and Czerny, up to 1893, 35 per cent.

The mortality is considerably heavier in the cases of carcinoma than in the other cases. But in both classes an analytical table, according to the years from 1881 to 1894, shows a progressive decrease in the mortality.

	CANCER, INCLUDING SARCOMA.			INNOCENT.		
	Recovered.	Died.	Mortality per cent	Recovered.	Died.	Mortality per cent.
1881 to 1887,	37	70	65·4	8	5	42·8
1887 to 1894,	56	42	42·8	13	5	27·7

II. GASTROENTEROSTOMY.

Of 388 cases of gastroenterostomy reported from 1887 to 1894, the mortality was 41·5 per cent. Here, also, the mortality is much lower in the later years than in the earlier.

In regard to the choice of operation—the antecolic or retrocolic—an analysis of cases gives:—antecolic (Wölfler), 104, with 58 recoveries; retrocolic (Hacker), 49, with 28 recoveries. In considering these results, it is to be remembered that the former is the easier of performance, and can be done more rapidly; also, that in certain cases the method of Hacker will be excluded by the presence of adhesions or infiltrations behind. It would seem, on the other hand, that, as regards functional results, there is a generally recognised presumption in favour of Hacker's procedure. The risk of compression of the transverse colon is avoided, and the statistics are better as regards vomiting as an immediate result of the operation (regurgitation of bile into stomach from the afferent bowel?). The cause of this would seem to be the formation of a spur or kink at the point where the afferent loop becomes attached; the difficulty may be got over by the formation of an anastomosis between the afferent and efferent loops.

Hacker's method is also supported by the consideration that during digestion the lower curvature of the stomach tends to come forward, and its posterior wall to look more or less downwards, so favouring the outflow by a posterior opening.

III. PYLOROPLASTY (HEINECKE-MICKULICZ).

In a total of 51 operations there were 11 deaths.

Loreta's operation: Of 31 cases 12 died. The risks from hæmorrhage are considerable, and there is always the tendency to recurrence. Dilatation must in some cases be quite impracticable, as, indeed, it has been found, and in such cases the attempt at dilatation does not improve the conditions for the performance of any other operation.—(*Langenbeck's Archiv*, Bd. 51, Hft. 3.)

Hydrocele: Results of Operation by Puncture and Injection of Iodine.—Spalinger reports the statistics of Krönlein's clinic at Zurich. From 1881 to 1894, 70 cases were treated. In 46 the fluid was evacuated, and 2 to 10 grammes of the tincture of iodine were injected and allowed to remain. Patients were kept in bed for an average of two weeks. Of 35 patients afterwards seen, 5 had a recurrence (14·28 per cent); 299 cases collected from other sources showed recurrences in 8 per cent. During the same period 17 cases were operated on by incision after the methods of Volkmann, Bergmann, and Julliard. The patients had an average stay in hospital of thirty-eight days, and when discharged, half of them had granulating wounds which required treatment. There were no recurrences.—(Abstract in *Annals of Surgery*, February, 1896.)

GYNÆCOLOGY AND OBSTETRICS.

BY E. H. LAWRENCE OLIPHANT, M.D.

The Treatment of the Stump of the Umbilical Cord.—The *New York Medical Journal* for 25th January, 1896, quotes from Dr. A. Jacobi's new book on Infancy. "In wrapping up the end of the cord no oil must be used. Warmth and dryness favour mummification; moisture and exclusion of air, gangrene. This holds good also for the cord when it is separated from the living baby by an additional ligature, and in the dead. Thus the former forensic axiom that a dry cord proved life, which prevailed for decades after Meckel had demonstrated its fallacy as early as 1853, is absolutely worthless. Thus, fatty substances and moisture of any kind must be avoided as much as possible. Powdered subnitrate of bismuth, or oxide of zinc, or iodoform, or salicylic acid, one part with ten parts of starch, may be dusted round the insertion of the cord or over the stump daily. The latter application is not necessarily useless (from the point of view of antisepsis), for the separation of the cord is a gradual one, and not uniform through the whole thickness of the amnion and the three blood-vessels. The size of the sore stump, and the rapidity or slowness of cicatrisation, depend upon the thickness of the cord, the intensity of the line of demarcation, and the reactive inflammation; the latter are not marked in vigorous infants. As a rule the surface is dry a few days after the falling of the cord, and cicatrisation complete within twelve or fifteen days after birth. This normal process is, however, disturbed by careless handling, local irritation, and infectious influences. In those cases there is a serous or purulent secretion, and cicatrisation may be deferred for many weeks. Under these circumstances local treatment is required. Carbolic acid ought to be avoided, for the newly-born and the infant are easily influenced by its poisonous properties. Solutions of lead, zinc, or alum answer equally well. As before, however, I recommend the powders of zinc oxide, bismuth subnitrate, alum, with starch or iodoform. Such measures will always prove helpful; to omit them in times of erysipelas or diphtheria is unpardonable. Perchloride of iron or sulphate of iron must not be used. Under the hard coagulation, formed by its application over the whole wound, secretions will accumulate, cannot escape, are absorbed, and produce sepsis. I have seen babies die from application of iron to the umbilical stump, as I know of women dying for the same reason when the hæmorrhage from their uteri or from their lacerated vaginæ were maltreated in the same manner."

The Question of Puerperal Self-Infection.—Dr. Charles Jewett read a paper with this title before the Medical Society of the State of New York (abstract in *New York Medical Journal*, February, 1896.) He said that ovarian abscess, pyosalpinx, suppuration of the vulvo-vaginal glands, or other pus-producing disease in or about the pelvis might be the source of puerperal fever, but the patient was then an already infected individual, and the infection was only an extension of the local process. Fortunately, this form of self-infection was rare. He said three opinions had been prominently held regarding the question of whether or not a lying-in woman was liable to infection from bacterial products of her own vaginal secretions, viz., 1. That the vaginal secretion might infect her whether healthy or diseased. 2. That only pathological secretions could infect. 3. That vaginal bacteria had practically no part in the ætiology of childbed fever. One observer had recently found strictly normal vaginal secretions in only fourteen per cent of pregnant women; another maintained that pathogenic bacteria did not live in the vaginal mucus. In health the vaginal secretion was acid in reaction; in disease it was either alkaline, neutral, or only feebly acid. Kronig, of Leipzig, had made a series of experiments from which he had been led to conclude that the streptococcus was killed in two or three days by healthy vaginal secretion, and that clinically the genital canal might be considered to be aseptic. After quoting copiously from the opinions and practice of many obstetricians, the author assumed the conclusion that there was no clinical proof that puerperal infection could occur from normal vaginal secretion; that all childbed infection in previously healthy women was by contact; and that the ante-partum antiseptic douche was not ordinarily indicated—indeed, was apt to be harmful.

The Palliative Treatment of Gonorrhœal Tubal Disease.—Dr. Pryor read a paper on this subject before the New York Academy of Medicine (abstract in *New York Medical Journal*, November, 1895). He said that in suppurative disease it was his practice to remove the uterine appendages and also the uterus, but while this was an ideal method on account of its completeness and thoroughness, the removal of the uterus was often followed by neurasthenia. The surgeon in this field was often compelled to do incomplete work in order to preserve to the woman certain physiological states. He had operated in seventeen cases in first attacks of acute salpingitis. The inflammatory process in these tubes had seemed to be almost entirely confined to the wall of the tube. He would assert positively that a proper and early resort to curettage often brought about a cure. All but three of his cases had recovered completely, and had menstruated normally after the operation. In some of those acute cases the greatest relief was obtained from curettage, followed up by a breaking up of adhesions through a crescentic incision in the posterior *cul-de-sac*, and the insertion of a Mikulicz dressing.

The least could be done for cases of recurrent salpingitis, in which the tubes were, as a rule, much congested, and the fimbriæ matted together. The uterus was usually dense and fibrous, and curettage had but little effect on the tubal disease. In hydrosalpinx and pyosalpinx the uterus should be curetted, the *cul-de-sac* opened, and, without disturbing the matted viscera, the tubes punctured and their contents evacuated. The tubes should then be packed with gauze. Where it was possible to protect these women from reinfection, he believed that a permanent cure could be secured in 80 per cent of the cases. The foregoing methods were intended for the general practitioner, who, without resorting to the severer surgical operations, could do a great deal more for these unfortunates than had been formerly accomplished by the old let-alone method of treatment.

Organic Heart Lesions Complicating Pregnancy.—Dr. Wessinger contributes two cases to the *New York Medical Journal*, February, 1896. The first patient, suffering from mitral regurgitation, had a somewhat tedious labour, and died suddenly during the second stage. The second patient suffered from mitral stenosis, and died eleven days after a twin confinement. He concludes that if the kidneys be diseased the patient should be rapidly delivered under *chloroform*. If the kidneys be not involved deliver under *ether* anæsthesia. Induce labour during pregnancy if grave symptoms make their appearance.

Funis Presentation and Funis Prolapse.—Dr. Brady contributes an article on this subject to the *Dublin Medical Journal*, January, 1896. He suggests that if the case be seen before the rupture of the membranes, abdominal or external version or combined bipolar version may be attempted, but admits that the practice is difficult; and, in any case, you might require to turn the child several times before the funis becomes "hooked" on to one of the fœtal limbs. If the os be sufficiently dilated to admit of speedy delivery, rupture the membranes as high as possible to lessen the risk of prolapse; you can then choose between replacing the cord in the uterus by a repositor, performing internal version, or thirdly, applying the forceps. If seen early, the genupectoral position may be tried, especially by a nurse who is waiting for assistance. In one case, Dr. Brady introduced his hand into the uterus and hung the cord over the child's legs. He further describes a case where he turned by internal version after failing with the bipolar method of Braxton Hicks, which had failed also in the previous case. In another case he applied the forceps in the genupectoral position. In another, the child was saved by version after he had failed to replace the funis with a repositor. He discusses the question of the extent to which one is justified in interfering solely in the interest of the child.

DISEASES OF THE EYE.

By FREELAND FERGUS, M.D.

Moorfields Hospital Reports.—There has lately been issued another part of the *Moorfields Hospital Reports*, which contains an immense amount of useful information.

To begin with, we notice a very interesting catalogue of the tumours met with in ophthalmic practice. We do not intend to enumerate the varieties of tumour mentioned in the article, but the list cannot fail to be of some value for purposes of reference.

A paper on the immediate and remote results of cataract extraction, by the curator of the museum, is also of special interest. At Moorfields there is an immense amount of material, so that results obtained there may be taken as good average results. The statistics deal with the cases between the years

1889 and 1893, both included, and have reference to 1,519 cases. In 1,091 of these cases an iridectomy was performed, 267 were extracted without iridectomy, 148 with preliminary iridectomy, and 13 with iridectomy previously performed for disease. The preliminary iridectomies were chiefly done where disease was known to exist. From the tables which the author submits it is found that the operation without iridectomy gave, as regards vision, the best results. The cases which gave the worst results were those with preliminary iridectomy. The author attributes this fact, and no doubt rightly, to the circumstance that only diseased eyes were treated in this way. In our opinion these are just the very eyes that ought not to have been submitted to a double operation. Some years ago we protested most strongly against the preliminary iridectomy, which was all but universal in this part of the world at that time. Then, as now, we regarded it as an exceedingly bad operation, especially if made downwards, which it generally was, as was also iridectomy for glaucoma. From the statistics now under discussion we find that in 13·86 per cent of cases without iridectomy there was prolapse of the iris. With iridectomy the percentage falls to 0·87. The percentage of suppuration is practically the same for each method--about 1·6 per cent. In speaking of suppuration after needling, the author says that very often a tag of capsule is carried by the needle into the wound. This, Dr. Marshall says, is the path by which the infection sometimes gains access to the eye.

Serous cyclitis forms the subject of an important paper by G. N. Ridley. After enumerating the various causes of the disease, he remarks that in some the anterior chamber is shallow, in others deep. The shallow anterior chamber he explains by supposing that the leucocytes and epithelium, which are proliferated, are caught in the suspensory ligament, thereby stopping the flow of fluid. The lens, ciliary body, and iris are thus pushed forwards, and the tension rises. The deep anterior chamber he accounts for, and perhaps not so satisfactorily, by saying that the effused products are arrested at the spaces of Fontana. In this form the tension is also high.

We would also call attention to an important paper on the results of removing pieces of metal by the electro-magnet. When the foreign body is in the vitreous chamber it is almost hopeless as regards the restoration of useful vision.

Primary Cancer of the Iris and Ciliary Body.—Dr. William Robertson has (in the *Ophthalmic Review*) lately described a case which he believes to be one of primary cancer of the iris and ciliary body. When carcinoma occurs in this situation it is, as a rule, secondary to cancer of the mamma. The case seems to be unique.

Elongation of the Ocular Muscles in the Treatment of Non-Paralytic Squint. Panas (*Archives d'Ophthalmologie*).—This is an important paper, for among the many excellent ophthalmic surgeons in France there are few who can compare in operative ability with the veteran of the Hôtel Dieu. We do not here enter upon a discussion of his views as to the etiology of squint, except that we think it right to say that he always regards it as of neurotic origin. Most surgeons share his opinion that the affection is undoubtedly a bilateral one, although only one eye is used for fixation. Holding this opinion, Dr. Panas always operates on both eyes—not on one —and before dividing the muscles he stretches them thoroughly.

The Probable Cause of Bitemporal Hemianopsia.—Abelsdorff has recently suggested that bitemporal hemianopsia may in many cases be due, not to pressure on the chiasma, but to a bilateral lesion affecting corresponding portions of the optic nerves or tracts. In this manner he explains the occurrence of bitemporal hemianopsia in locomotor ataxy of specific origin.

Books, Pamphlets, &c., Received.

A Practical Treatise on Materia Medica and Therapeutics, with special reference to the Clinical Application of Drugs, by John V. Shoemaker. Third Edition, thoroughly Revised. Philadelphia: The F. A. Davies Co. London: The F. J. Rebman Co., Ltd. 1895.

On the Diagnosis of Tubercular Joint Disease, by A. G. Millar, F.R.C.S. Edinburgh: Oliver & Boyd. 1896.

Nephritis of the Newly Born, by A. Jacobi, M.D. New York: The New York Medical Journal. 1896.

Hypnotism, Mesmerism, and the New Witchcraft, by Ernest Hart. A New Edition, Enlarged. London: Smith, Elder & Co. 1896.

Dairy Milk: its Dangers and the Remedies, by C. H. Leet, F.R.C.S. Liverpool: C. Tinling & Co. (2d.)

Transactions of the Seventeenth Annual Meeting of the American Laryngological Association. New York: D. Appleton & Co. 1896.

Epithélioma Primitif de l'Urèthre, par Melville Wassermann. Paris: G. Steinheil, Editeur. 1895.

Youthful Eccentricity a Precursor of Crime, by Forbes Winslow, D.C.L. Oxon., M.B., LL.M. Cantab. New York: Funk & Wagnall's Co. 1895. (2s.)

Researches into the Anatomy and Pathology of the Eye, by E. Treacher Collins, F.R.C.S. With 10 Plates and 25 Figures in the Text. London: H. K. Lewis. 1896. (6s.)

The Medical Annual and Practitioner's Index, 1896 (Fourteenth Year). Bristol: John Wright & Co. (7s. 6d. net.)

The Histopathology of the Diseases of the Skin, by Dr. P. G. Unna. Translated by Norman Walker, M.D. Edinburgh: William F. Clay. 1896. (31s. 6d.)

A Pictorial Atlas of Skin Diseases and Syphilitic Affections in Photolithochromes, from the St. Louis Hospital, Paris. Edited and annotated by J. J. Pringle, M.B. London: The Rebman Publishing Co., Limited. 1896. Part III. (10s. 6d. with a Portfolio.)

Lectures on Pharmacology for Practitioners and Students, by Dr. C. Binz. Translated by Arthur G. Latham, M.A., M.B. Oxon. Vol. I. London: The New Sydenham Society. 1895.

The New Sydenham Society's Lexicon of Medicine and the Allied Sciences. Twenty-Second Part: Pin—Puke. London. 1895.

Color Vision and Color Blindness: a Practical Manual for Railroad Surgeons, by J. Ellis Jennings, M.D. With Illustrations. Philadelphia: The F. A. Davis Co. 1896. (1 dol. net.)

Water and Water Supplies, by John C. Thresh. London: The Rebman Publishing Co., Limited. 1896. (8s.)

Rough Notes on Remedies, by William Murray, M.D., F.R.C.P. Lond. London H. K. Lewis. 1896. (3s. 6d.)

GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR THE FOUR WEEKS ENDING 21st March, 1896.

	Week ending			
	29th Feb.	7th March.	14th March.	21st March.
Mean temperature, . .	38·2°	41·1°	41·6°	44·2°
Mean range of temperature between day and night, .	11·6	12·1	13·4	13·4
Number of days on which rain fell, ...	5	6	5	7
Amount of rainfall, . .	0·80 in.	2·07 in.	0·30 in.	1·49 in.
Deaths registered,. . .	282	247	274	277
Death-rates, ...	20·8	18·2	20·2	20·4
Zymotic death-rates, . .	2·7	2·1	3·1	3·1
Pulmonary death-rates, .	6·3	5·5	7·2	6·3
Deaths—				
Under 1 year, . . .	61	44	55	60
60 years and upwards, .	46	40	36	39
Deaths from—				
Small-pox, ...	0	0	0	0
Measles, ...	6	3	7	10
Scarlet fever, . . .	2	3	1	2
Diphtheria, . . .	0	2	0	1
Whooping-cough, . .	17	15	23	20
Fever, ...	2	1	4	5
Diarrhœa, ...	10	5	7	4
Croup and laryngitis, .	3	0	0	0
Bronchitis, pneumonia, and pleurisy, . . .	55	50	60	60
Cases reported—				
Small-pox, ...	0	0	0	2
Diphtheria and membranous croup, ...	12	14	12	13
Erysipelas, . . .	22	18	20	22
Scarlet fever, . . .	47	54	54	43
Typhus fever, . . .	1	2	2	4
Enteric fever, . . .	13	15	13	17
Continued fever, . .	0	0	0	0
Puerperal fever, . .	0	4	0	2
Measles, ...	82	142	115	110

Sanitary Department,
Glasgow, *26th March, 1896.*

THE

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ORIGINAL ARTICLES.

DIPHTHERIA TREATED WITH ANTITOXIN: STATISTICAL STATEMENT OF RESULTS OBTAINED IN CITY OF GLASGOW FEVER HOSPITAL, BELVIDERE.

By ERNEST L. MARSH, M.B.,
Senior Assistant Physician.

The basis of the present article is a series of statistical data relating to diphtheria treated in Belvidere Hospital, showing more especially the results recently obtained with antitoxin.

The serum therapy of diphtheria has been practised in the wards of this hospital since November, 1894; but, until January, 1895, the supply of antitoxin obtained from the British Institute of Preventive Medicine was so limited that its use was reserved for cases of special gravity. Owing to this limitation only nine cases came under serum treatment during 1894, but subsequent to the beginning of January of last year the treatment has been applied to all suitable cases. In this statement, therefore, an estimate of its value will be made from the showing of the hospital statistics for 1895. These will embrace the ordinary details, and exhibit the customary comparisons required for a judgment of its value in so far as this can be accomplished by means of figures. But, before proceeding to an exposition of the experience of this new remedy as affecting the mortality of cases treated, a short statistical retrospect of the results of other methods of treatment previously adopted in Belvidere will be of interest. From 1890 the case mortality year by year, based upon the averages of all ages, runs as follows:—

Year.	Admissions.	Deaths.	Mortality per cent.
1890	88	35	39·8
1891	80	31	38·8
1892	78	29	37·2
1893	153	62	40·5
1894	245 [1]	87	35·5

The yearly admissions to hospital previous to the adoption of the Notification Act in 1890 were so inconsiderable that a tabulation of them would contribute nothing useful to the present article, and would lead to an erroneous estimate of the case mortality of diphtheria in Glasgow; for, even in 1894, and still more remarkably in the decade ending 1890, the death-rate in hospital was much higher for various obvious reasons than that amongst outside cases. The following table, however, gives expression to the chief data relating to the mortality of all the cases admitted into Belvidere from the date of opening up to and including 1894:—

TABLE SHOWING MORTALITY AT VARIOUS AGES OF DIPHTHERIA CASES ADMITTED INTO CITY OF GLASGOW FEVER HOSPITAL, BELVIDERE, DURING THE YEARS 1871-94 INCLUSIVE.

Age.	Males.			Females.			Total.		
	Admitted.	Died.	Mortality per cent.	Admitted.	Died.	Mortality per cent.	Admitted.	Died.	Mortality per cent.
Under 1 year, . .	7	6	85·7	10	6	60·0	17	12	70·6
1 and under 2, . .	46	26	56·5	45	35	77·8	91	61	67·0
2 ,, 3, . .	42	21	50·0	43	30	69·8	85	51	60·0
3 ,, 4, . .	60	25	41·7	46	24	52·2	106	49	46·2
4 ,, 5, . .	39	15	38·5	43	23	53·5	82	38	46·3
Total under 5, . .	194	93	47·9	187	118	63·1	381	211	55·4
5 and under 10, .	86	34	39·5	147	59	40·1	233	93	39·9
10 ,, 15, .	21	1	4·8	37	6	16·2	58	7	12·1
15 ,, 20, .	9	1	11·1	26	1	3·8	35	2	5·7
20 ,, 25, .	10	2	20·0	32	2	6·3	42	4	9·5
25 ,, 30, .	11	2	18·2	13	...	...	24	2	8·3
30 and upwards, .	7	...	...	10	...	...	17	...	...
Total over 5, . .	144	40	27·8	265	68	25·7	409	108	26·4
All ages, . . .	338	133	39·3	452	186	41·2	790	319	40·4

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[1] Nine of the severest cases received antitoxin; four died.

The diagnosis of the disease continued to be made on sight until the autumn of 1894, when it became the practice to supplement the clinical evidence by bacteriological examinations.

As already mentioned, the year 1895 saw the routine introduction of a new element in the treatment of diphtheria, and of the 179 patients suffering from this disease admitted to the wards during this period, 118 received the antitoxic serum supplied by the British Institute of Preventive Medicine, 17 the serum manufactured by Messrs. Burroughs, Wellcome & Co., and 2 that of Schering—137 in all. The remaining 42 cases represent either mild infections (38 cases) in which there was no risk to life, or profound toxæmias (4 cases), moribund on admission. The returns for this year show the case mortality to stand as follows:—

Year.	Admissions.	Deaths.	Mortality per cent.
1895	179	25	14·0

OUTLINE OF TREATMENT.

The antitoxic serum was injected subcutaneously in the front or sides of the abdomen under antiseptic precautions. As a rule, an injection of 10 to 20 c.c. of serum—the dose varying with the nature and indications of the case—was given shortly after the admission of the patient. In 76 cases a single injection only was made, but in the remainder further injections were necessary. Thus, of the 146 antitoxinised patients (which number includes the 9 cases belonging to 1894), 4 received doses of 5 c.c., 40 of 10 c.c., 15 of 15 c.c., 38 of 20 c.c., 10 of 25 c.c., 19 of 30 c.c., 17 of 35 to 40 c.c., 2 of 50 c.c., and 1 of 67 c.c. In all cases some simple local treatment was also adopted, the customary procedure being the employment of a throat spray of saturated solution of boric acid, which was supplemented in laryngeal and specially severe cases by a steam spray of soda solution (15 grs. of the bicarbonate to the oz.) every three or four hours. Besides the local treatment, patients were stimulated with whisky or brandy according to indications, while the establishment of convalescence was aided by the systematic use of tonics.

TRACHEOTOMY.

Besides receiving antitoxin, the circumstances of the case in 29 of the patients demanded the operation of tracheotomy, and the following table shows the mortality of these cases as compared with that of those previously operated upon in the hospital:—

BELVIDERE HOSPITAL.—RETURN OF TRACHEOTOMIES PERFORMED IN DIPHTHERIA.

AGE.	WITHOUT ANTITOXIN.									WITH ANTITOXIN.		
	1871-92.			1893.			1894.			1895.		
	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.
Under 5 years, .	57	44	77·2	22	18	81·8	14	12	85·7	21	8	38·1
5 and under 10,	15	13	86·6	18	13	72·2	9	8	88·8	8	2	25·0
All ages, . .	76	60	79·0	42	32	76·2	23	20	86·9	29	10	34·5

INTUBATION.

The operation of intubation of the larynx was performed in 2 cases under antitoxin, both of which recovered. Intubation, as now practised, had not previously been employed in Belvidere; but tubage of the larynx was in favour in the years 1881-84, when this operation was performed in 6 cases, one of which was successful, and recovered. In 2 of the fatal cases this procedure was ineffective, and they required subsequent tracheotomy.

BACTERIOLOGICAL EXAMINATION.

In 136 out of the 146 cases treated with antitoxin a bacteriological examination was made in the laboratory of the hospital. In 133 cases the bacillus diphtheriæ was found; but in 12 of them the characteristic growths were obtained only after repeated inoculation of blood-serum or glycerine agar nutrient material. In 105 instances the cultures yielded, besides the bacillus diphtheriæ, a number of other bacteria (streptococci, 19 cases; diplococci, 22 cases; staphylococci, 8 cases; and mixed cocci, 56 cases). Of the 3 cases which did not yield the bacillus, 2 were preceded in their illness by other members of their respective families—the first cases in each series having fatal diphtheria, while those coming second presented moderately severe types of the disease. The cases under remark, coming third in the series, had symptoms of a mild angina, and exhibited a thin soft exudation on the tonsils, from which colonies of micrococci only could be isolated bacteriologically. The remaining case (an adult with laryngeal diphtheria) yielded diplococci, and developed paralysis of the palate and sensory disturbance of the tongue, fingers, and soles of feet during the third week of illness.

Among the cases admitted to hospital during 1895 certified to be suffering from diphtheria, 58, or a proportion of 24·5 per cent, proved to be mistakes in diagnosis. Almost two-thirds of these cases were exanthematous infections (principally scarlatinal), and mostly capable of diagnosis clinically; the remainder were concluded to be non-diphtheritic affections from their signs and symptoms, aided by bacteriological negation.

During 1895 the dismissal of patients was regulated by their physical fitness, and freedom from the bacillus as ascertained by a bacteriological examination of the throat. In 4 patients otherwise suitable for dismissal the bacillus was found on the twenty-second day of residence in hospital, in 3 on the thirty-fifth day, and in 4 on the forty-second day.

As an instance that the degree of immunity to diphtheria, even after recovery from an attack of that malady treated with antitoxic serum, lasts in some cases for only a short time, the experience of a boy aged 6, ill with diphtheria of the tonsils, uvula, and nose, who received 10 c.c. of serum, may be given. He was fifty days in hospital, convalescence being retarded by paralysis of the palate. Prior to dismission a bacteriological examination of a swab from the throat, but not from the nose, was made, which furnished no bacilli. Patient was brought to the hospital for inspection four weeks later. His mother, who accompanied him, stated that he continued well to all outward seeming till a day or two previous, when he complained of pain under the right ear if the part was touched. She had examined the throat about three weeks before this, and had thought the right tonsil swollen. No subsequent examination was made at home, but inspection of the throat now showed a mild angina principally affecting the right tonsil, where two small patches of pellicular exudation existed on the surface. As the deposit presented the clinical appearances of diphtheria, a fresh cover-glass specimen was made and examined for diphtheria bacilli, numbers of which were found. Patient was, therefore, retained in hospital, and a swab from the throat submitted to a bacteriological examination. A tube of glycerine agar and another of blood serum were inoculated, and next day each showed a number of colonies which yielded medium sized bacilli diphtheriæ. Patient was dismissed well three weeks later.

The average length of residence in hospital during the different periods under contrast was:—

	1871-92.	1893.	1894.	1895 (antitoxin year).
Recoveries, .	29	30	32	38 days.
Deaths, .	3	3	4	9 ,,

FAUCIAL CASES*—SHOWING MORTALITY OF CASES TREATED IN BELVIDERE.

Age.	1871-92.			1893.			1894.			1895.			Antitoxin cases only (1894-95).		
	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.
Under 1 year, .	6	2	33·3	1	1	100·0	4	3	75·0	3	...	..	3	...	...
1 to 2, . .	15	7	46·7	6	...	...	9	5	55·6	9	...	...	5	...	...
2 ,, 3, . .	15	6	40·0	3	1	33·3	16	3	18·8	12	...	...	8	...	...
3 ,, 4, . .	34	9	26·5	4	...	...	12	3	25·0	7	1	14·3	5	1	20·0
4 ,, 5, . .	14	4	28·6	6	1	16·7	13	3	23·1	7	1	14·3	6	1	16·7
Total under 5,	84	28	33·3	20	3	15·0	54	17	31·5	38	2	5·3	27	2	7·4
5 to 10, . .	76	23	30·3	28	4	14·3	47	8	17·0	36	...	...	25	...	...
10 ,, 20, . .	41	2	4·9	12	1	8·3	31	2	6·5	17	1	5·9	9	1	11·1
20 ,, 30, . .	29	3	10·3	12	...	...	18	...	...	10	...	...	6	...	...
30 and upwards,	8	...	...	1	...	...	8	...	...	2	...	...	1	...	...
Total over 5, .	154	28	18·2	53	5	9·4	104	10	9·6	65	1	1·5	41	1	2·4
All ages, . .	238	56	23·5	73	8	11·0	158	27	17·1	103	3	2·9	68	3	4·4

* Cases in which the local lesions were limited to the tonsils, palate, and visible parts of the guttural fossa.

LARYNGEAL CASES*—SHOWING MORTALITY OF CASES TREATED IN BELVIDERE.

AGE.	1871-92.			1893.			1894.			1895.			Antitoxin cases only (1894-95).		
	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.	No. of Cases.	Deaths.	Mortality per cent.
Under 1 year, .	5	5	100·0	...	...	...	1	1	100·0	5	4	80·0	4	3	75·0
1 to 2, . .	26	22	84·6	15	13	86·7	20	14	70·0	15	6	40·0	18	9	50·0
2 ,, 3, . .	20	15	75·0	19	17	89·5	12	9	75·0	20	4	20·0	18	2	11·1
3 ,, 4, . .	28	19	67·9	9	4	44·4	19	14	73·7	10	3	30·0	11	3	27·3
4 ,, 5, . .	28	19	67·9	10	4	40·0	11	7	63·6	9	3	33·3	10	3	30·0
Total under 5,	107	80	74·8	53	38	71·7	63	45	71·4	59	20	33·9	61	20	32·8
5 to 10, . .	39	30	76·9	23	15	65·2	20	13	65·0	15	2	13·3	15	2	13·3
10 ,, 20, . .	3	2	66·7	4	1	25·0	3	1	33·3	1	...	...	1	...	...
20 ,, 30, . .	4	2	50·0	...	...	...	1	1	100·0	...	...	...	...	...	...
30 and upwards,	1	...	...	...	...	...	...	...	...	1	...	...	1	...	...
Total over 5, .	47	34	72·3	27	16	59·3	24	15	62·5	17	2	11·8	17	2	11·8
All ages, . .	154	114	74·0	80	54	67·5	87	60	69·0	76	22	28·9	78	22	28·2

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* Includes nasal, faucial, and other cases in which the laryngeal implication was the most obvious circumstance.

ANALYSIS OF ANTITOXIN CASES.

Of the 146 cases of diphtheria treated with antitoxin during 1894 (9 cases) and 1895 (137 cases), 25, or a proportion of 17 per cent, proved fatal. For the better appreciation of the effects of this new element in the treatment of diphtheria on the hospital results, the two preceding tables are given to illustrate the mortality according to the site of the disease under the old and new conditions of treatment.

RASHES.

Besides the local erythematous blush which sometimes occurred shortly after the injection, a rash was observed in 79 of the cases under serum treatment. In the majority of instances (58) this was of the nature of a fugitive urticaria which lasted from two to ten hours, and appeared usually between eight and twelve days after the injection. In one of these cases this form of rash occurred early—viz., within the first thirty-six hours after the injection, and disappeared in five hours.

In 17 cases the rash was introduced by an urticaria seven or eight days after treatment, and was followed by successive polymorphous efflorescences, with or without a slight disturbance of temperature. These lasted for periods varying from one to seven days.

The rash appeared in the form of a simple erythema in 4 cases on the first, eighth, eleventh, and twelfth days respectively. A patient who had exhibited this form of rash (after receiving 10 c.c. serum), and had been dismissed well on the forty-second day of residence in the hospital, developed an urticaria two weeks later. Another patient, resident sixty-seven days in hospital (receiving 10 c.c. serum, followed on eighth day by urticaria), developed a nettlerash four weeks after dismissal. These are the only developments of this nature occurring amongst serum-treated patients with which I am familiar, and I was able to keep 113 of the 121 patients who were dismissed well under observation for periods varying from three weeks to four months.

In two instances a small abscess formed at the site of the injection. This resolved in one case, and required evacuation of the contents in the other; but in neither instance was the wellbeing of the patient interfered with.

The wrist and ankle-joints became slightly painful in 4 cases eleven or twelve days after the injection of doses of 15 c.c., 20 c.c., 20 c.c., and 30 c.c. in each of the cases. These joint conditions were evanescent, and called for no special treatment. The above statement represents the whole of the untoward phenomena connected with the employment of the serum.

PARALYSIS.

Of the 146 antitoxin cases, 11 were under observation in hospital over seventy days; 38 between forty-five and sixty days; 43 between thirty and forty days; and 54 under twenty-five days; and the number that exhibited unequivocal paralysis during this time was 18 cases, or a proportion of 12·3 per cent. When the 20 cases which died early (see Statement of Fatal Cases), before it was possible for paralysis to be declared, are deducted, an incidence of 14·3 per cent is given. The majority of the cases of paralysis (11) occurred among patients suffering from the milder "faucial" form of diphtheria with whom the neuroses were more marked (3 fatal cases) and varied than with the "laryngeal" cases where paralysis occurred in 7 patients (2 fatal).

After dismissal, 46 of the former patients were again examined within four weeks, and paresis of the palate was discovered in 3 of them; 25 were examined within six weeks of dismissal, and 1 showed a paresis of the palate; 25 were examined within eight weeks of dismissal, and 1 had sensory phenomena; 11 were examined within ten weeks of dismissal, and 1 had ciliary and oculo-motor paresis; 6 were examined within sixteen weeks of dismissal, and in 1 the knee-jerk was absent.

The proportion of antitoxinised patients, therefore, who exhibited undoubted post-diphtheritic neuroses when corrected according to the additional data obtained above stands at 17 per cent, or deducting cases fatal early in their illness at 19·5 per cent.

CAUSES OF DEATH.

Any remarks at the present time under this heading will be summary, and thus adapt themselves to the limitation of this article to a statistical statement. In dealing, therefore, with the fatal cases under antitoxin treatment, it is thought best to enumerate them under a few necessary headings, and to further classify into series those cases dying under similar conditions as to time and pathological processes. I have to express my obligations to Dr. A. R. Ferguson, of the Pathological Department in the Western Infirmary, for frequent assistance at *post-mortem* examinations.

STATEMENT OF TWENTY-FIVE FATAL CAS

No.	Age in Years or Fraction of Year.	Weight.	Day of Illness.	SERUM THERAPY.			BACTERIOLOGI EXAMINATI
				Kind Employed.	When Injected, and Quantities used.	Total Quantity.	
							Series No. 1.—Moribund Ca
1	7	38 lb.	5th	B.I.[1]	1½ hr. after admission, 30 c.c.	30 c.c.	B. diphther and strep cocci.
2	1 7/12	...	4th	B.I.	½ hr. ,, 20 c.c.	20 c.c.	None.
3	2	24 lb.	3rd	B.W.[2]	1 hr. ,, 10 c.c.	10 c.c.	B. diphtheri
4	4	28 lb.	3rd	B.I.	1 hr. ,, 20 c.c.	20 c.c.	None.
5	9/12	...	8th	B.I.	½ hr. ,, 20 c.c.	20 c.c.	B. diphtheri and strept cocci.
							Series No. 2.—Profound Toxæ
1	1 5/12	...	14th	B.I.	½ hr. after admission, 20 c.c. 16 hrs. ,, 10 c.c.	30 c.c.	B. diphther
2	2 3/12	23 lb.	3rd	B.I.	19 hrs. ,, 20 c.c.	20 c.c.	B. diphther and staph cocci.
3	1	18½ lb.	6th	B.I.	2½ hrs. ,, 15 c.c. 17 hrs. ,, 10 c.c.	25 c.c.	B. diphthe
							Series No. 3.—Acute General Tox
1	1 2/12	14 lb.	5th	B.I.	5 hrs. after admission, 10 c.c.	10 c.c.	B. diph and stre cocci.
2	4½	...	6th	B.I.	21 hrs. ,, 20 c.c.	20 c.c.	B. diph
3	9/12	12 lb.	14th	B.I.	1 hr. ,, 10 c.c.	10 c.c.	B. diphth

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[1] British Institute of Preventive Medicine.

F DIPHTHERIA UNDER ANTITOXIN.

REMARKS.

th within 10 hours of admission.

Condition grave; dyspnœa; thick membrane on tonsils and palate; tracheotomy 7 hours, and death 9 hours after admission from heart failure. Urine non-albuminous. *Post-mortem:* Pseudo-membrane on fauces, tonsils, larynx, trachea, and bronchi. Heart and kidneys apparently normal.

Moribund on admission; died within 1 hour. *Post-mortem:* Membrane over tonsils, larynx, and trachea. Kidneys showed no naked eye lesion.

Moribund on admission; dyspnœa; thick membrane visible on fauces. Died within 9 hours. Urine not obtained. No sectio allowed.

Asphyxiated on admission; tracheotomy; patches of membrane on tonsils and pharynx. Died 8 hours after admission of cardiac failure. No sectio allowed.

Moribund on admission; died within 1½ hour. *Post-mortem* examination of fauces and larynx allowed. Thick membrane found in these situations.

ath within 24 hours of admission.

Condition very serious; asphyxiated on admission, and tracheotomy at once. Died of heart failure within 24 hours. *Post-mortem:* Membrane extending from fauces to bronchial tubes. Kidneys and other organs showed no naked eye lesions.

Emaciated child; patches of membrane on the tonsils and oro-pharynx; dyspnœic breathing. Died 24 hours after admission with symptoms of heart failure. Urine voided in bed. Highest temperature, 99·2° F. *Post-mortem:* Kidneys and heart appeared normal. Membrane over the posterior nares, pharynx, larynx, and trachea.

Condition grave; patches of membrane on tonsils; laryngeal stenosis. Highest temperature, 101·8° F. Increasing lividity followed by death 24 hours after admission. Urine voided in bed. *Post-mortem:* Congenital absence of left kidney; other kidney slightly hypertrophied, but otherwise negative to naked eye. Heart and lungs healthy. Membrane invading fauces, larynx, and trachea.

ath within 48 hours of admission.

Condition grave; no visible membrane; dyspnœic breathing; broncho-pneumonia. Highest temperature, 104·8° F. Died 28 hours after admission. No sectio allowed.

Condition grave; dyspnœic breathing; thick membrane on tonsils, uvula, and pharynx; albuminuria on admission. Died with symptoms of heart failure 27 hours after admission. No sectio allowed.

Condition very serious; membrane on tonsils and in larynx. Urine voided in bed. Died of heart failure within 30 hours of admission. No sectio allowed.

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[3] Burroughs, Wellcome & Co.

No.	Age in Years or Fraction of Year.	Weight.	Day of Illness.	Serum Therapy.			Bacteriologica Examinatio
				Kind Employed.	When Injected, and Quantities used.	Total Quantity.	
4	$1\frac{10}{12}$	23 lb.	4th	B.I.	4 hrs. after admission, 20 c.c. 15 hrs. ,, 10 c.c. 23 hrs. ,, 10 c.c.	40 c.c.	B. diphthe and staphylo- cocci.
5	$1\frac{5}{12}$	16 lb.	7th	B.I.	6 hrs. ,, 15 c.c. 16 hrs. ,, 5 c.c.	20 c.c.	B. diphthe and strep cocci.
6	5	34 lb.	8th	B.I.	½ hr. ,, 20 c.c.	20 c.c.	B. diphthe and staphy- cocci.
Series No. 4.—Septic Cas							
1	3	25 lb.	5th	B.I.	1 hr. after admission, 18 c.c. 12 hrs. ,, 10 c.c. 35 hrs. ,, 5 c.c. 62 hrs. ,, 7 c.c. 86 hrs. ,, 5 c.c.	45 c.c.	B. diphthe and strepto- cocci.
2	$1\frac{2}{12}$	15 lb.	5th	B.I.	45 hrs. ,, 15 c.c. 69 hrs. ,, 15 c.c.	30 c.c.	B. diphthe and staph cocci.
3	$3\frac{4}{12}$	24 lb.	3rd	B.W.	1 hr. ,, 15 c.c. 24 hrs. ,, 10 c.c.	25 c.c.	B. diphth and str cocci.
4	$\frac{7}{12}$	15 lb.	4th	B.I.	1 hr. ,, 20 c.c. 11 hrs. ,, 5 c.c. 14 hrs. ,, 8 c.c. 23 hrs. ,, 5 c.c. 61 hrs. ,, 6 c.c.	44 c.c.	B. diphth
5	$1\frac{8}{12}$	...	5th	B.I.	½ hr. ,, 20 c.c. 9 hrs. ,, 10 c.c.	30 c.c.	B. diph and cocci.
6	$1\frac{1}{2}$	15 lb.	4th	B.I.	½ hr. ,, 20 c.c. 10 hrs. ,, 10 c.c. 30 hrs. ,, 10 c.c. 45 hrs. ,, 7 c.c. 49 hrs. ,, 10 c.c. 55 hrs. ,, 10 c.c.	67 c.c.	B. diph

REMARKS.

ndition grave; thick membrane on uvula and tonsils; dyspnœic breathing; tracheotomy 14 hours after admission. Death within 48 hours of admission. Highest temperature, 103·8° F. Urine voided in bed. *Post-mortem:* Broncho-pneumonic lesions; membrane over posterior nares, larynx, and trachea. Kidneys normal on section.

ndition grave; ill-nourished child; membrane on tonsils and in nose; dyspnœic breathing; urine voided in bed. Highest temperature, 105° F. Heart failure 40 hours after admission. No sectio allowed.

ndition very serious; co-existing tubercular disease; asphyxia necessitating tracheotomy shortly after admission. Membrane visible on fauces and pharynx. Trace of albumen in urine. Heart failure 40 hours after admission. No sectio allowed.

ı from third to sixth day after admission.

ıdition grave; dyspnœa requiring tracheotomy 3 hours after admission; patches of membrane on left tonsil and palate; erythematous rash occupied trunk and thighs 35 hours after admission; 24 hours later unequivocal signs and symptoms of broncho-pneumonia. Highest temperature, 105° F. Fibrillary tremors of lips noticed on the third day, and again next day before death. Urine, one-third albumen. *Post-mortem:* Lungs showed numerous sub-serous hæmorrhagic puncta and patches of broncho-pneumonic consolidation. No membrane in air-passages. Surfaces of kidneys also showed hæmorrhagic puncta, and cut section exhibited universal injection.

ıdition grave; antitoxin delayed in transmission, hence lateness of administration. Membrane over tonsils, epiglottis, and larynx; laryngeal stenosis; urine clear. Second day developed broncho-pneumonia. Highest temperature, 106·8° F. Fifth day, died. *Post-mortem:* Heart healthy; consolidation complete in degree, and extensive in area in the right lung, and similar but less extensive implication of the left viscus. Kidneys apparently healthy. Absence of diphtheritic membrane.

dition grave; dyspnœa; membrane over tonsils, uvula, and larynx; tracheotomy 13 hours after admission. Slight albuminuria on admission. Third day, developed broncho-pneumonia. Highest temperature, 104·8° F. Died, fifth day. No sectio allowed.

dition grave; dyspnœa necessitating tracheotomy 1½ hour after admission. No visible membrane; albuminuria. Fifth day, urticaria rash on abdomen; signs and symptoms of broncho-pneumonia. Highest temperature, 105·4° F. Died, sixth day. *Post-mortem* examination of lungs only: Septic broncho-pneumonia. No membrane in air passages.

dition very serious; asphyxia; tracheotomy shortly after admission; no membrane visible; pneumonia as a complication on admission; septic rash 24 hours after admission. Highest temperature, 107·6° F. Urine voided in bed. Died, third day; septic broncho-pneumonia. No sectio allowed.

lition very serious; dyspnœa; thin membrane visible on tonsils; urine albuminous. Third day, broncho-pneumonia. Highest temperature, 104·8° F. Died, fifth day. *Post-mortem:* Air passages clear of membrane; patches of consolidation in lungs; microscope showed lesion to be essentially a broncho-pneumonia, but besides this inflammatory lesion, there was well-marked miliary tuberculosis. Caseating tubercular nodules in the lungs and spleen. Renal epithelium healthy.

Series No. 5.—Paralysis

No.	Age.	Weight.	Day of Illness.	SERUM THERAPY.			BACTERIOLOGI EXAMINATI
				Kind Employed.	When Injected and Quantities Used.	Total Amount Used.	
1	4½	...	15th	B.I.	53 hrs. after admission, 20 c.c. 72 hrs. ,, 10 c.c. 96 hrs. ,, 10 c.c.	40 c.c.	B. diphthe and cocci
2	3	23 lb.	9th	B.I.	2 hrs. ,, 10 c.c.	10 c.c.	B. diphther
3	10	52 lb.	15th	B.I.	½ hr. ,, 15 c.c.	15 c.c.	B. diphthe
4	4	31 lb.	4th	B.I.	5 hrs. ,, 10 c.c. 30 hrs. ,, 5 c.c.	15 c.c.	B. diphthe and cocc
5	3½	27 lb.	8th	B.W.	1½ hr. ,, 10 c.c.	10 c.c.	B. dipht and co

REMARKS.

th from paralysis during stage of convalescence.

ondition grave; simulated scarlatina anginosa, but diagnosis established bacteriologically, hence delay with serum therapy. Membrane on tonsils, palate, and in nose; gangrenous odour; urine albuminous on admission; breathing dyspnœic. Highest temperature, 103·8° F. Fifth day, nettlerash on trunk, became morbilliform next day. Paresis of palate noticed on twentieth day of illness; increased albuminuria; slight anuria: occasional retching and vomiting on twenty-first day; death preceded by uncontrollable vomiting on the twenty-third day of illness. *Post-mortem:* Numerous sub-serous puncta of hæmorrhage over the heart, while similar puncta are noted along the posterior convexity of the lobes of the lung. Otherwise heart, lungs, and air-passages appear healthy. Kidneys appear healthy on section. Caseous mesenteric glands; tubercular ulceration of intestine. Diphtheritic membrane still present on left tonsil, absent elsewhere.

ondition favourable; patches of membrane on tonsils, fauces, in nose and larynx, which disappeared on eighth day of treatment. Slight albuminuria on admission. Nettlerash on eighth day after injection, and faded next day. Paresis of palate and squinting developed in sixth week of illness, and was followed in beginning of seventh week with uncontrollable vomiting, anuria, and other symptoms of vagus neuritis. Died of paralysis, fifty-fourth day of illness. *Post-mortem:* Heart showed several sub-serous hæmorrhagic puncta, and a similar hæmorrhage existed under the capsule of the kidney at one point. Otherwise the body presented no characteristic naked eye lesions.

ondition favourable; membrane on tonsils, fauces, and uvula; albuminuria on admission; pyuria on sixth day. On twenty-second day of illness, retching, vomiting, and symptoms of vagus neuritis. Died twenty-third day. *Post-mortem:* Heart slightly enlarged; naked eye appearances of heart and lungs normal. Purulent endometritis and cystitis (old standing); invasion of ureters by pus. Kidneys bore no evidence of pus formation, but were hyperæmic.

ondition favourable; thick membrane on tonsils; slight albuminuria on admission. Membrane disappeared on fourth day of treatment. Eleventh day of illness, symptoms of vagus paralysis; frequent vomiting and retching; no anuria at first. Uncontrollable vomiting till death on fifteenth day of illness. *Post-mortem:* Naked eye appearances of myocardium normal; lungs and kidneys also normal. Mucous membrane of stomach showed fairly numerous punctæ, and larger areas of sub-mucous hæmorrhage, chiefly, but not entirely, confined to the pyloric region.

ondition favourable; thin membrane on tonsils; slight albuminuria on admission; Membrane disappeared three days after treatment. Nettlerash on seventh day, again on eighth day. Allowed up on thirty-second day of illness. On thirty-fifth day occasional vomiting; sparse petechial eruption over front and back of chest. No anuria at first. Uncontrollable vomiting and retching ending in death on thirty-seventh day of illness. *Post-mortem:* Petechial eruption over upper part of chest, inner aspect of forearms and thighs, skin surface of right upper eyelid, mucous surface of lower lid, and under the conjunctivæ. Two or three spots of same nature were seen under the buccal mucous membrane. Cardiac muscle appeared normal; kidneys normal; nothing remarkable about stomach.

In the first three series is detailed a class of case which always furnishes a large proportion of deaths among hospital-treated cases. They were every one cases of diphtheria with laryngeal implication, detained at home till the urgent dyspnœa demanded operative measures, when they were removed to hospital. Under these circumstances the disease was not taken in hand in those patients forming the first series of cases till their condition was hopeless. In the second and third series of cases the prospect was little better; but in the fourth series, although the prognosis was grave, the patients held out well till they succumbed with the establishment of a septic broncho-pneumonia. It will be noted that the bacteriological examination yielded diphtheria bacilli associated with streptococci or staphylococci in 11 cases dying within six days of admission. The cases forming the last series improved under treatment, and were well clear of the ordinary risks of the local condition when they developed paralysis in the form of vagus neuritis which ended fatally. In these different series, then, we have roughly, cases dying on admission, cases dying from abnormal complications, and lastly, cases dying from the severity of the paralytic sequelæ.

CONSIDERATION OF RESULTS.

My intention hitherto has been to present only simple statements of fact which readily allow of interpretation without the necessity for supplementary remarks. I now take occasion to express under the above heading a few observations in which my personal judgment is prominent.

The amount of diphtheria dealt with in this hospital, though comparatively small, yet supplies a fair basis on which to form a comparison of the serum method of treatment with other remedies formerly adopted in Belvidere, and it is pleasant to find from the foregoing statistics that the fatality of diphtheria in this hospital has been distinctly reduced. The total mortality, which has never been below 35·5 per cent in any one year previous to the antitoxin treatment, *is now 14 per cent.* The fatalities arising from "faucial" and "laryngeal" diphtheria admitted in 1895 are represented by the figures *3 and 29 per cent,* and for the two preceding years—1893 and 1894—by 11 and 68 per cent and 17 and 69 per cent respectively. The improvement in the mortality rates of those cases requiring tracheotomy is perhaps the most striking result of all, and can be best appreciated when the comparison is made by taking the antitoxin results as 10. The mortalities are then found to bear the following ratio:—

	1893.	1894.	1895.
All cases, ...	29	25	10
Tracheotomies, . . .	22	25	10

The suggestion that an alteration in the type of the disease might partly explain these results may be met with the assertions (1) that the quality of the cases and average age of the patients under treatment during 1895 rather favour the other periods under comparison (see Tables of Faucial and Laryngeal Cases); (2) that among home-treated cases the case mortality for 1895 presents the average of the two preceding years, which shows that there was no variation in the type of the disease. Dr. A. K. Chalmers, Joint Medical Officer of Health, has kindly furnished the following return, which corroborates the latter statement:—

GLASGOW.—RETURN OF CASES REGISTERED AND OF DEATHS FROM DIPHTHERIA AND MEMBRANOUS CROUP, SHOWING MORTALITY PER CENT.

Year.	Treated at Home.			Treated in Hospital.			Total.		
	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.
1893, . .	670	145	22·0	153	62	40·0	823	207	25·0
1894, . .	715	167	23·0	245	87	35·0	960	254	26·0
1895, . .	468	114	24·0	179	25	14·0	647	139	21·0

Here the contrast between the abrupt fall in the case mortality of the hospital-treated cases, as compared with the unaltered percentage of the home-treated cases, is very striking. It may perhaps be thought as striking that the case mortality among home-treated cases is as low as it is; but the hospital experience of the number of mistakes in diagnosis shows that a considerable allowance must be made for the varying standard of appreciation of what is really diphtheria existing among different medical men. As already mentioned, the number of mistakes in diagnosis among the cases admitted into hospital during 1895 was 58, which gives a proportion of all but 25 per cent. Ten of these died.[1] The effect which this comparatively low mortality (17 per cent) would have on the death-rate of cases notified as diphtheria, suggests one explanation of the apparently lower diphtheria death-rate among home-treated cases compared with hospital results. In the immediately preceding years—1893 and 1894—the errors in diagnosis amounted to 26 and 20 per cent respectively.

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[1] Six of these cases had scarlatina anginosa, two measles, one enteric fever, and one was a case of post-pharyngeal abscess.

Nor does the hospital gain any exceptional advantage from the stage of the disease at which treatment was commenced for 85 per cent of the cases were admitted after the malady had been established over two days. It is interesting in this connection to consider the results in relation to the duration of the disease.

TABLE SHOWING RESULTS WITH REFERENCE TO PERIOD OF COMMENCEMENT OF TREATMENT.

Duration of Illness.	Treated.	Died.	Mortality per cent.
In the 1st week—			
Within 48 hours,	21	...	15·9
On 3rd day,	20	4	
On 4th day,	23	6	
On 5th day,	21	4	
On 6th day,	14	2	
On 7th day,	8	1	
In the 2nd week,	34	6	17·6
In the 3rd week,	5	2	40·0
Total,	146	25	

The fatal cases amongst patients ill three to seven days represent all but 4 of the cases forming Series 1 to 4 in the Statement of Fatal Cases, where the number under the concurrent operation of pus-cocci and streptococci forms one of the reasons for their comparatively high death-rate. Half of the deaths among patients coming under the influence of the treatment in the second and third weeks of illness will be found in Series 5 to be due to paralysis.

It is evident from these statistics that in the experience of this hospital antitoxin has considerably reduced the diphtheria death-rate, and must therefore be affirmed to be a therapeutic agent of great utility. As already stated, I have not yet had experience of any objectionable physical reaction other than those mentioned under the heading "Rashes." With improved methods of preparation these occurrences will diminish, and give a remedy as pleasant in its effects as it is potent against the fatal toxic forms of diphtheria. With this expression of opinion regarding the value of antitoxin, the present statement ends. What further effects the antitoxin treatment has upon the clinical course of diphtheria will form the subject of another communication.

LECTURES ON CLINICAL MEDICINE.

DELIVERED IN THE GLASGOW ROYAL INFIRMARY.

By JOHN LINDSAY STEVEN, M.D.,
Physician and Lecturer on Clinical Medicine in the Infirmary.

III.

ON THE NAUHEIM (SCHOTT) METHODS OF TREATMENT AS APPLIED TO CASES OF CARDIAC VALVE DISEASE OF RHEUMATIC ORIGIN.[1]

If we except the new photography, there is perhaps no subject which has attracted more attention in the medical journals, during the past winter, than that of the Schott methods of treatment as applied to the diseases of the heart. The results, which have been published showing their beneficial influence in the treatment of dilatation and valvular disease of the heart, are certainly, if they may be wholly trusted, most wonderful; indeed, in one of our Glasgow medical societies I have heard them described as marvellous. During the clinical course, which is just now closing, we have had under observation in the wards a large number of cases of cardiac valve disease, and being duly impressed by the accounts of the wonder-working powers of the Nauheim system, I determined, if possible, to try the method in one or two of them. Briefly stated, the treatment consists of two parts, which may be used separately or together, according to the judgment of the physician and the necessities of the case: (1) The use of a series of saline and effervescing baths of slowly increasing strength and diminishing temperature; and (2) the employment of a regulated series of resisted movements, "widerstand-gymnastik," as they have been denominated by their inventors. I shall describe the composition of the baths immediately, but, in the meantime, let me say that I purpose in the present lecture to deal in detail with three of our cases of rheumatic cardiac valve disease in which the Schott treatment was attempted. In only one of these could it be fully carried out; in the other two it may be said to have failed. We have had under observation in the wards, during the same period, a number of other cases almost precisely similar as regards the age of the patients and the character of the valvular lesions, and treated by the usual remedies, to which, if necessary, I may refer, but not in detail, for purposes of comparison, in giving you my opinion upon the suitability of the Nauheim system for this class of case.

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[1] Delivered Friday, 3rd April, 1896.

In the preparation of the baths we used as a guide the paper of Dr. Robert Saundby, which was published in the *British Medical Journal*, 2nd November, 1895, p. 1081. In all our baths 40 gallons of water were employed, sufficient completely to immerse the patient's body, the chin resting on the surface of the water. The patient remained without movement in the bath for a period varying from six to ten minutes, and the temperature of the water was gradually reduced from 96° F. at the beginning of the course, to 87° F. at the end of it. A series of five saline baths, according to the following formulæ, were made use of:—

No. 1 bath contained 4 lb. of common salt, and 6 oz. of chloride of calcium.

No. 2 bath contained 5 lb. of salt, and 8 oz. of chloride of calcium.

No. 3 bath contained 6 lb. of salt, 10 oz. of chloride of calcium, 10 oz. of bicarbonate of soda, and 8 oz. of hydrochloric acid.

No. 4 bath contained 7 lb. of salt, 10 oz. of chloride of calcium, 10 oz. of bicarbonate of soda, and 12 oz. of hydrochloric acid.

No. 5 bath contained 9 lb. of salt, 11 oz. of chloride of calcium, 1 lb. of bicarbonate of soda, and 18 oz. of hydrochloric acid.

Baths Nos. 3, 4, and 5 were effervescent, and the bicarbonate of soda was gradually added to the water during the whole period of the patient's immersion, so as to keep up a continual effervescence. The amount of carbonic acid given off from No. 5 bath was quite sufficient to be somewhat disagreeable to the sensations both of the patient and the attendants.

The resisted gymnastic exercises were carried out five days a week by Misses Spence Watson and Rosa Wilson, experts in this department of therapeutics, who, at my request, most kindly volunteered to carry out this part of the treatment. For a full account of these movements and the method of carrying them out I would refer you to Dr. Bezly Thorne's book on the Schott methods of treatment (London, 1895).

For the clinical histories of the cases, the pulse tracings, and the outline diagrams of the chest, which were carefully copied at the time from the areas of dulness marked out on the patient's body by myself, I am indebted to Mr. Archd. Young, B.Sc., M.B., my house physician, and for the careful management of the baths, frequently under my own supervision, I am under obligation to Staff-nurse Keillor and her probationers.

CASE I.—*Mitral Disease, with well-marked regurgitation of rheumatic origin; full course of baths and exercises; improvement as regards general health and dyspnœa, but condition of heart, as tested by character of murmur and apex beat, practically unchanged.*

Annie M'D., æt. 13, was admitted to Ward 8 on the 28th January, 1896, suffering from cardiac valve disease, on the recommendation of Dr. Marion Gilchrist, to have treatment by baths and exercises. She had scarlet fever four years ago, and was in an hospital at Airdrie for some weeks. With this exception she seems to have enjoyed good health until two years ago, when she had an attack of rheumatic fever, which lasted about a month, and from which she seems to have made a very good recovery. She remained well until September last (1895), when she suffered for a week from "a bad cold and cough," and after going about for a week with this she took a second attack of rheumatic fever. She states that after a fortnight in bed at this time she got up and went about for three days, but on account of her feeling stiff and sore and being very breathless, with troublesome palpitation, she returned to bed at the advice of Dr. Marion Gilchrist, where, it seems, she has remained since. The breathlessness was noticed first at this time.

It is stated that the wrists and ankles were involved earliest in the attack of September last, but all the other joints became involved also. It is doubtful, however, how far this statement is to be relied on, as patient has difficulty in giving satisfactory answers. Her legs have never been swelled. She takes her food well, and her bowels are regular. The pain returned somewhat to the right wrist and hand, but when cannot be definitely ascertained. The affected joints were, at the time of the fever, much swollen.

Her father and mother are healthy. She has two brothers and two sisters alive and well; a brother died of "scarlet fever and dropsy;" a sister of scarlet fever and some "fit" during it.

Examination on Admission.—She lies comfortably enough in bed in the dorsal decubitus. She says that even lying quietly in bed she is conscious of excessive beating of the heart. Her colour is good, the cheeks rather flushed.

On inspection of the præcordium, somewhat diffuse pulsation is visible over the fourth and fifth interspaces. The point of greatest intensity is about 3¼ in. from the mid-sternal line in the fifth interspace. There is also slightly undue pulsation at the root of the neck in front. The area of cardiac dulness is distinctly increased in size, measuring at greatest transverse width 4½ in. The right border passes ¾ in. to right of the mid-sternal line; the upper reaches the upper edge of the fourth rib; the outer reaches 3¾ in. to left of middle line. The first sound over the apex has a very loud and forcible beginning, and terminates in a loud and long blowing murmur. This murmur is heard well over the back at almost any point, and is also conveyed well out into the axilla. Passing in towards the sternum it diminishes in intensity, and at a point midway between the apex and middle line it is rather hard to make out. It is, however, never entirely lost. Going further in and up towards the base the murmur becomes, if anything, more audible, but this is more notable over the pulmonic than over the aortic area. The second sound is not easily heard at the apex, but over the pulmonic area it is very strikingly reduplicated.

The V.S. murmur is conveyed, to some extent, into the vessels of the neck. The pulse numbers 84 per minute, is of only moderate tension, but is regular in rhythm.

The liver dulness measures 1 in., 2½ in., and 3 in. in the middle, nipple, and mid-axillary lines. There is no tenderness on palpation of the liver. There is no enlargement of the spleen. The lungs are examined with negative results. The tongue is slightly coated.

31st January, 1896.—Urine, specific gravity, 1022; very acid, pale amber colour, flocculent deposit, no albumen or sugar.

In view of a saline bath to be given this morning, the physical signs and the pulse condition are reinvestigated at 9·40 A.M. As regards the cardiac condition and the area of cardiac dulness, no difference from that recorded in the previous note can be made out, the measurements, condition of the impulse, and the cardiac sounds being precisely similar. The pulse as tested by the sphygmograph is distinctly and

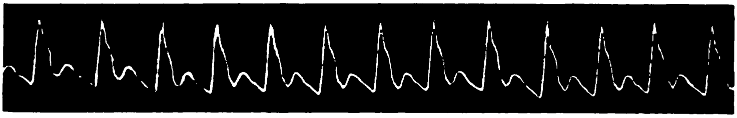

Fig. 1.—Annie M'D. (Case I). Before first bath of the course.
This and the other tracings illustrating this lecture were taken by Mr. Arch. Young, B.Sc., M.B.

almost fully dicrotic. It numbers from 92 to 96 per minute, observed lying in bed, and over several minutes.

At 9·51 A.M. she entered No. 1 saline bath at a temperature of 96° F., and left it at 9·58 A.M.

After she had been four minutes in the bath the temperature of the water was ascertained to be 95° F. At 10·1 A.M., three minutes after the bath, the pulse in the dorsal decubitus, in bed, numbered 100, and five minutes later 96. The sphygmograms taken respectively five and seven minutes after the bath show, if anything, a very slight decrease in the degree of dicrotism; but the tracing is still characteristically one of low tension.

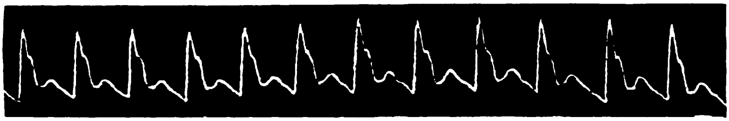

FIG. 2.—Annie M'D. (Case I). After first bath of the course.

A careful examination of the præcordial area within ten minutes of leaving the bath reveals no change. In particular, the apex beat is not altered in position.

1st February.—Another bath to-day. Before the bath at 9·48 A.M. the pulse in the dorsal decubitus numbered 100 per minute; at 9·58 A.M. she entered the bath. The sphygmogram before the bath was much as noted yesterday, being fully dicrotic. No appreciable change in the characters of the sphygmogram after the bath, nor in the measurements of the cardiac dulness, could be observed. The pulse after the bath numbered 98 per minute in the dorsal decubitus.

7th February.—The baths have been intermitted on account of the patient's menstruating, and are resumed to-day. The pulse, counted in bed a few minutes before the bath, and over two or three separate minutes, numbers 96, is of fair strength, with an occasional irregularity of time. The sphygmogram at the left radial shows perhaps a slightly less forcible percussion wave, but the dicrotism is perhaps not so pronounced as previously noted. Bath No. 1, temperature 95° F., was administered. During the last minute in the bath the pulse numbered 96, one observer counting 98, the other 94. In bed, five minutes after the bath, the pulse numbered 90.

The cardiac area, apex beat, and condition of the murmur were investigated before and twenty minutes after the bath, and no appreciable alteration in any of them could be made out. As regards comparison with the previous note, however, Dr. Steven has the impression that the V.S. murmur is not so audible at the base, and he doubts if it can be heard in the vessels of the neck. The reduplicated second pulmonic sound is still very marked. Half an hour after the bath the pulse numbered 89 over a whole minute.

8th February.—Another bath is given to-day. Five minutes before the bath the pulse in the dorsal decubitus numbered 88; during the last minute in the bath, pulse 92; immediately after, 82; fifteen minutes after, 82; thirty minutes after, 82.

Before the bath the cardiac apex was found to be less punctuate than formerly 3 in. from middle line; the right border of cardiac dulness ⅜ in. nearer the middle line; the transverse diameter, 4 in. Sphygmogram of the right radial was dicrotic, but not fully so.

Five minutes after the bath the left border of cardiac dulness was possibly half an inch nearer the middle line, and the apex beat could hardly be felt as a punctuate beat, apparently because it was behind the fifth rib. The sphygmogram was as before.

On the 11th February Misses Rosa Wilson and Spence Watson commenced a course of resisted gymnastic movements, and these were continued five days weekly till the end of the treatment.

12th February.—No. 2 saline bath is given to-day, and before it the following facts are made out:—Pulse, 82 per minute in the dorsal decubitus, in bed; the sphygmogram, if anything, shows less dicrotism; the area of cardiac dulness measures only 4 in. across, the diminution being chiefly on the right side, the right border being only half an inch to right of middle line. The apex beat is practically in the same situation—fifth interspace and 3½ in. from the middle line. The cardiac condition as regards murmurs is as at previous note. The pulse during the last minute in the bath numbers 92. One minute after going back to bed the pulse numbers 84. The sphygmogram shows comparatively little alteration; if anything, however, the tension is a little higher. Ten minutes after the bath the apex beat is found to be in precisely the same situation. The area of cardiac dulness is less by half an inch in transverse measurement than before the bath, the decrease being at the expense of the left border. It is noted, however, that considerable difficulty exists in mapping out the cardiac area on account of a very loud tympanitic stomach note, the presence of which has probably had considerable effect in diminishing the area of dulness.

18th February.—The bath was not given yesterday on account of a slight sore throat and a pain in left knee which the patient complained of. To-day No. 3 bath is given.

The pulse before bath numbered 84; in bath during last minute, 88.

The sphygmogram before bath is still markedly dicrotic. The apex impulse is 3⅜ in. from middle line. The cardiac dulness 3½ in. across, the right border being at the mid-sternal line.

The murmur is very loud at apex, thought indeed to be as loud as ever it has been, possibly louder than ever.

Pulse fifteen minutes after bath, 76; thirty minutes after, 78. The sphygmogram after, if anything, more dicrotic. The cardiac dulness and the apex beat are quite unaltered.

24th February.—Before No. 4 bath to-day the pulse is 90; the apex beat in fifth interspace 3½ in. to left of middle line; and the area of cardiac dulness measures 4 in. across, the right border being half an inch to right of middle line; the upper in middle of third interspace. After the bath, while in bed, the left border was found about half an inch nearer the middle line; the apex beat was not altered in position, and in every other respect the cardiac conditions were as before the bath. The pulse, however, in bed after the bath numbered 78; but taken every three minutes during the bath it numbered 90, 93, 94; half an hour after, 87. There was no pinkness of skin at any time in the bath.

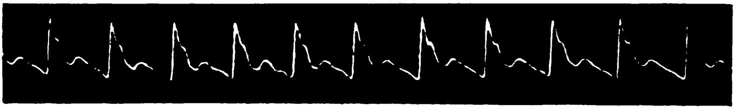

FIG. 3.—Annie M'D. (Case I). Before fourteenth bath of the course.

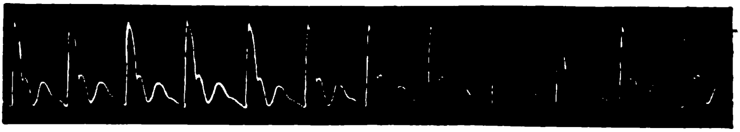

FIG. 4.—Annie M'D. (Case I). After fourteenth bath of the course.

7th March.—Another note of cardiac condition is made to-day. The cardiac dulness measures 4 in. across; the apex beat is unaltered; pulse to the finger, before No. 4 bath, is dicrotic, and the sphygmogram confirms this. After the bath the tension of pulse is possibly higher, but the area of cardiac dulness is quite unchanged.

The treatment by baths was stopped upon 26th March, 1896, and the last of the Swedish exercises was given the next day, when I made the following observations upon the physical signs before and after them:—

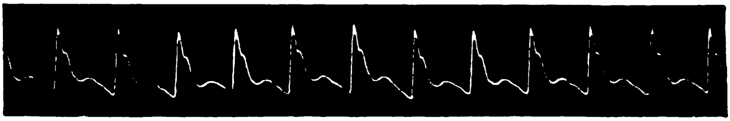

FIG. 5.—Annie M'D. (Case I). Before thirty-first bath of the course.

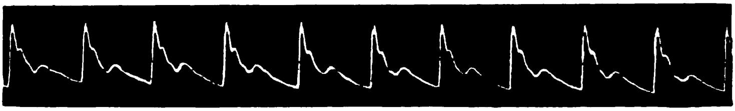

FIG. 6.—Annie M'D. (Case I). After thirty-first bath of the course.

Before the exercises, the patient being in bed, pulse 78. The apex beat was in the fifth intercostal space, 4 in. to the left of the middle line. The right border of cardiac dulness was half an inch to the right of the middle line, the left border was difficult to delimit on account of the encroachment of a highly tympanitic gastric note, but as nearly as could be made out the greatest transverse measurement was 3½ in. The V.S. apex murmur was, as usual, loud and harsh.

A few minutes after the exercises, when the patient had returned to bed, the pulse numbered 75; the position of the apex beat and the area of the cardiac dulness were quite unchanged; and the mitral murmur was very loud.

After this date the course of treatment was regarded as finished, and the patient was allowed to be up and to move about the ward. During the treatment she had been confined to bed, and this enforced rest must also be taken into account in estimating the results of treatment.[1]

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[1] This patient, who had been a fortnight at the Lenzie Convalescent Home, was shown at a clinical demonstration given in my wards to the members of the Glasgow Eastern Medical Society on the 22nd April last. The improvement in the general condition was well maintained, and she had no dyspnœa. The apex beat was practically in the same position, and the murmur was as loud as ever.

CASE II.—*Mitral Disease with well-marked regurgitation of rheumatic origin; great dilatation of heart, with angina-like pain; attempt to treat by baths followed by chorea; effect of exercises evidently to increase cardiac hypertrophy.*

Annie J., æt. 17, domestic servant, was admitted to Ward 8 on 4th December, 1895, on account of severe præcordial pain and increasing breathlessness.

In April, 1894, the patient had an attack of acute rheumatism, in which all the large and small joints of both upper and lower extremities were involved, and about a week after the onset of this illness she began to experience præcordial pain on the slightest exertion, and very little exercise brought on intense breathlessness.

She went into the Western Infirmary, under Dr. Tennent, at this time, and was resident there for about five months. She never got rid of the præcordial pain, but was sent at the end of this time to Lanark Convalescent Home, where she remained for six weeks. She was only a week or two home, when severe præcordial pain and increasing breathlessness on exertion compelled her to seek advice at the Dispensary of the Glasgow Royal Infirmary. She was seen there by Dr. Dunlop, and recommended to the wards.

A year before the attack of acute rheumatism, she had rheumatism of most of her joints, but without any marked fever. Her legs have never swelled, except in the course of the rheumatic fever, around the several joints affected. The joints most severely involved were those of the ankles and wrists. The cause of her rheumatism, she thought, was a chill got after wetting herself in washing, a part of her work as a domestic servant. While at Lanark she first became conscious of her heart beating very violently, and since then this symptom has become more distressing.

Her father died of some bronchial or asthmatic trouble. Her mother still lives and enjoys good health. Four sisters are alive and well; four others and one brother died in infancy.

Examination on Admission.—She is thin and emaciated. The face is pale, the eyes lustrous, and pupils dilated. Tongue moist and red. The lungs show no abnormal signs. The cardiac dulness measures 4½ in. across; its upper edge is on a level with the upper edge of the fourth rib, its inner, half an inch to right of mid-sternum, and the outer just outside nipple line.

There is somewhat diffuse pulsation visible over the præcordial area, but probably the most punctuate beat is about 3½ in. out from mid-sternum in the fifth interspace. Over this area a well-marked V.S. murmur of a pronounced blowing type is audible. It has a somewhat abrupt sharp beginning, almost suggesting an A.S. element. The second sound is pure over this area. Passing in and up, away from the area of cardiac dulness as mapped out, the murmur gets less distinct, and is almost immediately lost on passing over the upper margin. Over the aortic and pulmonic cartilages the first sound is heard almost pure, and the second is very loud and staccato in quality, especially over the pulmonic cartilage.

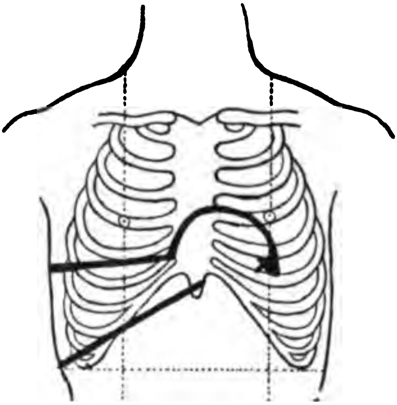

FIG. 7.—Annie J. (Case II). On admission.

Great pain and sense of abnormally tumultuous cardiac action over præcordial region are complained of, and at present, 10 P.M., she is obliged to sit up in bed, in a position midway between dorsal decubitus and complete orthopnoea.

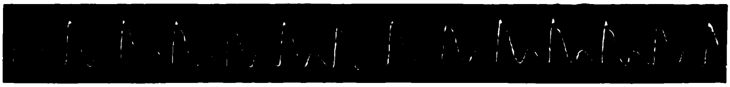

FIG. 8.—Annie J. (Case II). On admission.

The pulse is of low tension, fairly regular, but very rapid, numbering 130 beats per minute. The liver measurements are 1¼ in., 3 in., 3¼ in. in the middle, nipple and mid-axillary lines respectively. Very little hepatic tenderness is noted.

No swelling of the legs. Menstruation began last April, but only one period has been experienced. Since the first onset of the function no further menstrual flow has occurred.

Urine, specific gravity, 1026; acid in reaction; amber colour; mucous deposit; no albumen; no sugar; phosphates.

6th December.—The obvious features of this case are those of well-marked mitral regurgitation without any very obvious signs of generalised passive congestion. The pulse is quite appreciably dicrotic even to the finger.

30th December.—At 10·7 A.M. the pulse numbered 94, being small and, to the finger, somewhat dicrotic. The respirations were 28. With the sphygmograph the pulse (patient in bed and recumbent) presents a characteristically dicrotic character. At 10·35 A.M., after mapping out the cardiac dulness and taking the sphygmogram, the pulse numbers 100. The apex beat is forcible, occupying the fourth intercostal space within the nipple line, and about 3 in. from the middle line. The right border of cardiac dulness is ¾ in. to right of of middle line, the upper in middle of third intercostal space, the outer passes downwards just outside the apex beat, the total transverse measurement being 3⅞ in.

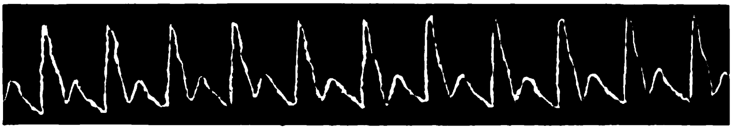

Fig. 9.—Annie J. (Case II). Before saline bath No. 1. High up-stroke probably due to excitement.

Fig. 10.—Annie J. (Case II). After saline bath No. 1. Dicrotism less.

Saline bath at 10·41 A.M.; remained in it for six minutes. At 10·49 A.M. (patient again recumbent in bed) pulse numbered 96, and the sphygmogram indicated less dicrotism than before, and the percussion wave was less pronounced. Transverse cardiac dulness not appreciably altered after bath, and certainly not diminished.

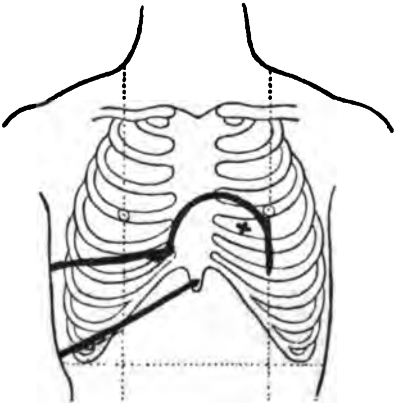

Fig. 11.—Annie J. (Case II). Before and after saline bath.

5th January, 1896.—On the day of the bath, but before it was given, she had complained of some pain in the left wrist, not very acute, and rather of the nature of a soreness, not preventing her using the hand. It was, however, wrapped up on account of this. Yesterday at dinner Nurse Keillor observed that she had some difficulty in holding her bowl of soup, jerky movements of the arm going on all the time. This morning, slight, but quite distinct, choreic movements are observed in the left hand and arm and on the left side of the face. No enlargement of spleen, or albumen in urine. She never had twitchings of her muscles before.

29th January.—Præcordial pain, particularly at night, has all along continued a prominent and distressing feature of this case; indeed, the pain, coming on as it does at more or less definite intervals, might be denominated angina. Patient is unfit for the slightest exertion, even sewing fatiguing her in a very short time. While at rest in bed there is no obvious dyspnœa, although the patient prefers a somewhat high pillow. A pulse tracing to-day indicates marked dicrotism, and the rate at the time of tracing is 116, an hour after, 112. The temperature throughout has been normal or sub-normal, and the weekly register of weight has varied between 5 st. 5 lb. and 5 st. 10 lb., there having been, on the whole, a slight tendency to decrease of weight since the beginning of January, but the difference is by no means great.

The urine, on the whole, has maintained an average daily quantity and specific gravity, and upon only two occasions in the course of twenty-six examinations has a slight trace of albumen been recorded. Chorea has quite gone, and no complaint of joint pain has been made for some weeks.

The physical examination of heart to-day gives the following results:—Apex beat most punctuate in fourth intercostal space about 3 in. from the middle line, and is preceded by a slight, though quite perceptible, thrill. In the second left interspace another pulsation is visible, to the fingers quite clicking in character, and alternating with the apex beat.

The extremely emaciated condition of the chest wall renders the pulsating areas easily visible. The right border of cardiac dulness is ¾ in. to right of middle line, the upper touches the third rib, and the total transverse measurement is 3¾ in.

On auscultation over the apex, the most prominent murmur is V.S. in rhythm. In addition, however, a murmur is also detected in the long pause, without, however, any of the harsh and superficial quality usually associated with a typical A.S. bruit. The second

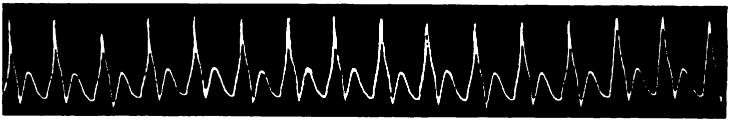

FIG. 12.—Annie J. (Case II). Tendency to hyperdicrotism.

sound is markedly accentuated over the pulsating pulmonary artery. In the aortic area the cardiac sounds are heard almost pure, the V.S. murmur being conveyed to the ear, however. In this area, also, at the end of inspiration a distinct friction sound is heard, but whether pericardial or pleural is not determined.

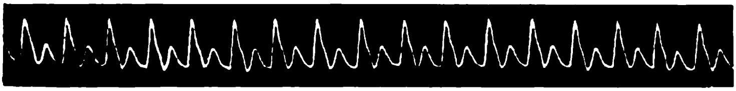

FIG. 13.—Annie J. (Case II). On dismissal to Convalescent Home.

20th March.—Patient goes to the Convalescent Home to-day, her general state, if anything, better; still liable to nocturnal præcordial pain. Cardiac dulness 5 in. across, reaching on its right side ¾ in. to right of mid-sternum and the third rib above. Apex beat is difficult to localise on account of the generalised præcordial heaving.

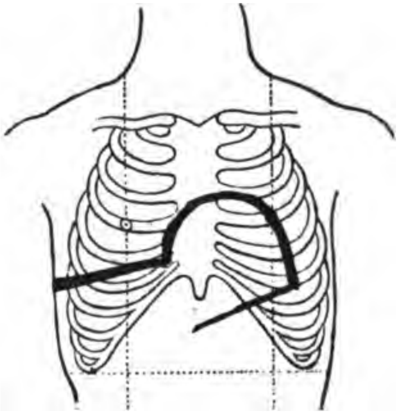

FIG. 14.—Annie J. (Case II). On dismission.

In this case, one of the most troublesome symptoms was cardialgia, always most severe at night, and frequently assuming characters suggestive of genuine angina pectoris. The treatment consisted at first of the exhibition of tincture of digitalis as a cardiac tonic. The pain, however, became so bad that such drugs as phenacetin, nitrite of amyl, and nitro-glycerine were cautiously administered for its relief, most success being obtained with the last named. On the 9th of March we commenced with great care a mild course of resisted movements. The course was discontinued upon the 19th of March, without any change of any kind having been noted as the result of them. The following table shows at a glance the details of this part of the treatment:—[1]

DATE.	DURATION OF EXERCISES.	PULSE-RATE.	
		Before.	After.
9th March, ...	5 minutes.	...	...
10th ,, ...	10 ,,	118	116
12th ,, ...	15 ,,	120	124
16th ,, ...	15 ,,	120	118
17th ,, ...	5 ,,	122	124
18th ,, ...	10 ,,	126	134
19th ,, ...	15 ,,	120	126

CASE III.—*Mitral Disease with regurgitation and great hypertrophy of heart of rheumatic origin; improvement under ordinary remedies; saline bath, with result that patient left hospital rather than submit to another.*

Agnes D., æt. 12, a schoolgirl, was admitted to Ward 8 on 9th November, 1895, suffering from breathlessness on exertion, and præcordial pain.

Up till last winter patient enjoyed fairly good health, with the exception of mild attacks of measles and scarlet fever in infancy. About January last, however, she suffered for about two months from pains in the joints of knees, elbows, wrists, ankles, and phalanges. She was not confined to bed at this time, and there does not seem to have been pyrexia during the illness, at least, not to any noticeable extent, and no breathlessness was remarked at that time.

She remained healthy until about nine weeks ago, when, after slight premonitory joint pains affecting the knees and ankles, she had a sudden severe attack of pain over the cardiac region while out with her mother. Her mother took her home at once, and she was confined to bed for some three weeks, and has for about six weeks now been going about pretty continually.

This heart pain has been unaccompanied by any oppressive palpitation, no beating over the heart having beeen noticed. Since its onset, nine weeks ago, great breathlessness has been experienced, especially on any exertion, such as stair climbing.

---

[1] On leaving the Infirmary, Annie J. went to the Schaw Convalescent Home, Bearsden. There her symptoms soon became more urgent, dyspnœa, lividity, and dropsy becoming extreme. She died on the 20th April last, and a *post-mortem* examination was held upon the 21st. The pericardium was found to be universally adherent, the heart and pericardium together weighing 25 oz. The mitral orifice was dilated, and there was well-marked endocarditis of its curtains. The left ventricle and auricle were much dilated, and a large patch of recent endocarditis was found on the posterior and inner aspect of the internal surface of the latter.

No urinary trouble. Appetite has been for some time rather poor. Bowels regular, however.

For the first three weeks of this illness, during which she was confined to bed, severe cough and copious spit were complained of, and the cough seemed to make her very breathless. She has fallen off in flesh to some extent within the past year, and now weighs 4 st. 9 lb.

Her mother is alive and strong. Her father has been ill for about a month with some disease of the kidneys. She has a brother and a sister living, the latter having at times præcordial pain. A brother and a sister died of measles, another brother was burned, and a third died of "inflammation of the bowels."

Examination on Admission.—She is very evidently weakly and delicate. Face pale, general body surface rather anæmic. The mucous membranes exhibit this well. The tongue is clean and moist. The lungs present no abnormal indications. The cardiac dulness is much increased. Its limits are $\frac{3}{4}$ in. to right of mid-sternum, lower edge of third rib, and $\frac{1}{4}$ in. outside nipple line—total transverse measurement $4\frac{3}{4}$ in. The whole præcordial region is very evidently the seat of undue, rather tumultuous, cardiac action. The proper apex impulse is most punctuate in the fifth interspace, 3 in. out from mid-sternum, but in the fourth, third, and second and nearer the sternum, as one ascends, there is visible pulsation. On auscultation of the whole cardiac area, the sounds, although hurried and tumultuous, are free from murmur, except over the apex and within an area of about 1 in. around this, but passing out also into the axilla. The second is, if anything, rather accentuated; and over the extreme lower end of the sternum the sounds are heard

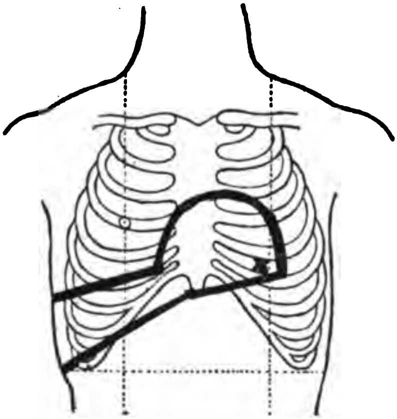

FIG. 15.—Agnes D. (Case III). On admission.

quite free from murmur. No thrill is made out on palpation. The liver measurements are 3½ in. in mid-axillary line, 3 in. in nipple line, and in mid-sternal line the dulness is carried up right into the cardiac dulness. There is no hepatic tenderness, no œdema of legs, &c. Pulse weak, of low tension, and regular in rhythm, 120 per minute.

27th November.—Little change of note falls to be recorded since admission. The course of the case has been quite apyretic, and there has been no complaint of joint pains or of breathlessness. The bowels have been, on the whole, loose to the extent of two or three motions daily, and the appetite has been very poor, although sickness, which was troublesome for a few days after admission, has disappeared under lactopeptine. Beyond this the treatment has consisted entirely of rest in bed. There is no hepatic enlargement or tenderness, and the lungs present throughout normal characters. The area of cardiac dulness is practically quite as at last note, measuring 4¾ in. across, the right border being almost an inch to right of middle line, the upper at the middle of the third cartilage. The apex impulse is as before noted, and no change in the condition of the murmur can be made out.

To-night over the pulmonic area, however, a reduplication of the second sound is noted. The pulse is very small, numbering 100, but quite regular in rhythm. Respirations are 28, and in no sense laboured, the patient lying flat down in bed with comfort.

16th December.—The only thing to be noted to-day about the cardiac examination is that the mapping out of the cardiac dulness makes the total transverse measurement at most 4¼ in.; otherwise the physical signs are much as at previous note.

28th December.—In view of the saline bath, the following points of physical examination are made out at 10·30 A.M. Pulse is 100 per minute, is small and compressible, and, as shown by the sphygmograph, distinctly dicrotic, with a predicrotic wave. This observation taken in bed. In the upright posture, after walking to the end of the ward, pulse numbers 120. No change in the area of cardiac dulness to be made out since last note, the measurement being 4¼ in. in greatest transverse diameter, the outline being as in the diagram on p. 355. The apex beat is most punctuate in the fourth interspace, although still distinctly visible in the fifth. There is still pulsation visible in the second, third, fourth, and fifth interspaces; but, on the whole, less tumultuous and forcible than before. Owing to the diffuse character of pulsation, it is difficult to measure the distance of a punctuate apex impulse from the middle line; but both in fourth and fifth spaces it is well within the left border of cardiac dulness.

Patient entered bath at 10·32 A.M., and left it at 10·39 (seven minutes). Walked to bed. At 10·41 A.M. the pulse, taken in recumbent posture, numbered 106, and to finger had much the same characters as before.

Ten minutes after leaving bath a sphygmogram at same pressure as previously was taken, the only difference between the two sphygmograms being a distinctly stronger upstroke; otherwise the features are the same. Percussion of the heart is carried out at 10·55 A.M.,

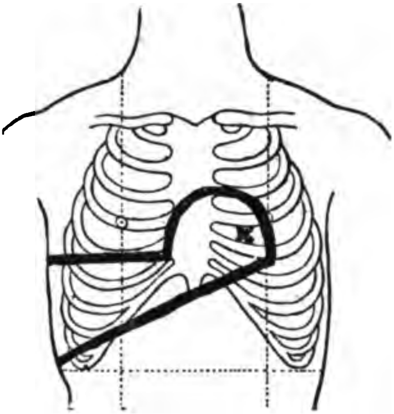

FIG. 16.—Agnes D. (Case III). Before and after saline bath.

and the most careful attempts by Dr. Steven, Dr. Young, and Miss Hannay (medical student) fail to detect any difference in cardiac area, which remains the same as shown in the diagram.

It is to be noted, also, that the immediate effect upon the pulse, *i.e.*, within five minutes of the bath, was to weaken it, as at first great difficulty was experienced in getting the needle of the sphygmograph to move.

Dismissed 3rd January, 1896, much improved.

The effect of the bath on this girl, for some reason or other, was such that she gave her parents no rest until they removed her from the hospital. She complained of feeling sick after it, but there was no objective evidence of this. For the rest the treatment consisted of absolute rest in bed; and from the 28th of November she received, thrice daily, a mixture containing small doses of tincture of strophanthus, liquor arsenicalis, and tincture of nux vomica. We attributed the improvement in the condition of the heart to the prolonged rest in bed.

In proceeding on the basis of the foregoing cases to make a few remarks upon the value of the Schott methods of treatment, I desire to make it plain that my remarks are entirely limited to a discussion of the Nauheim method as applied to the treatment of rheumatic valvular heart disease, in which compensation has commenced to give way, or has more or less completely failed. Of the influence of the Schott treatment

TABLE SHOWING THE EFFECTS OF SALINE BATHS UPON THE PULSE-RATE OF ANNIE M'D. (CASE I).

Date.	Time in Bath.	Temp. of Bath.	PULSE-RATE				REMARKS.
			Before Bath.	During Bath.	After Bath.	Half hour after Bath.	
1896.							
Jan. 31	6 min.	96° F.	92	...	100	...	*No. 1 bath.*
Feb. 1	,,	,,	100	...	98	...	
							Intermitted owing to menstruation.
,, 7	,,	,,	96	96	90	89	
,, 8	,,		88	92	82	82	*11th.* — Swedish exercises begun, and continued 5 days weekly.
,, 11							
,, 12	7 min.	,,	82	92	84	...	*No. 2 bath commenced.*
,, 13	,,	,,	85	92	85	81	
,, 15	,,	,,	80	88	84	80	
,, 16	,,	,,	76	84	82	80	
,, 17							No bath; sore throat; pain [in knee.
,, 18	,,	95° F.	84	88	76	78	*No. 3 bath commenced.*
,, 20	,,	,,	82	86	88	79	
,, 21	,,	,,	80	84	74	80	
,, 24	10 min.	,,	90	93	78	87	*No. 4 bath commenced.* Pulse every 3 minutes in bath, 90, 93, 94.
,, 25	,,	,,	84	93	86	88	
,, 26	,,	,,	74	91	82	79	
,, 27	,,	,,	98	90	90	84	
,, 28	,,	,,	84	94	90	82	
,, 29	,,	,,	82	97	85	84	
Mar. 2	,,	,,	85	96	84	84	
,, 3	,,	,,	84	82	96	86	Skin slightly pink.
,, 4	,,	,,	78	88	82	96	Skin slightly pink.
,, 5	,,	,,	96	100	92	102	Skin decidedly pink all over.
,, 6	,,	,,	92	114	112	94	Skin pink.
,, 7	,,	,,	88	88	98	86	
,, 9	,,	94° F.	76	91	84	92	*No. 5 bath commenced.*
,, 10	,,	,,	92	92	86	80	Skin red.
,, 12	,,	93° F.	76	80	90	74	
,, 13	,,	,,	84	92	86	94	
,, 14	,,	92° F.	92	92	94	98	
,, 19	,,	91° F.	102	94	104	116	
,, 20	,,	90° F.	90	88	98	100	
,, 23	,,	89° F.	84	84	80	80	Pinkness of skin not at all very marked, and after 6 minutes quite pale.
,, 24	,,	88° F.	86	84	80	82	
,, 26	,,	87° F.	84	86	84	80	

on any other varieties of disease—cardiac or other—I have as yet no experience, and shall say nothing. Into a discussion of the theory underlying the method of treatment by baths and exercises I shall not enter. I have no special theory to support, or, of my own, to offer; and for information as to the theoretical speculations of others I content myself by referring you to Dr. Saundby's paper already mentioned, and to the paper of Dr. R. F. C. Leith, published in the *Lancet*, 21st and 28th March, 1896, to each of which lengthy bibliographical lists are appended.

It may possibly be urged by those who have practised the Nauheim system most assiduously that my method of procedure in carrying out the treatment has been faulty. To this I have only to say that I was feeling my way as carefully as possible, actuated solely by a desire to do the best I could for the patients, and that the details of the whole procedure have been laid before you. In the case of Annie M'D. the course of treatment may perhaps have been too rapidly and vigorously carried through. The case of Annie J. may have been entirely unsuitable for it—indeed, I now think that it was. Agnes D. may not have required the treatment at all, and certainly her own impression was to this effect. I was careful, however, to watch that no appreciable harm was being done, and that being so, I can simply base my opinion on the results of the treatment as it was carried out.

In the first place, I have to remark that I have been quite unable to obtain any of the striking changes in the condition of the pulse, or of the area of cardiac dulness, which have been recorded by many observers in terms which were bound at once to rivet the attention of everyone accustomed to make frequent physical examinations of the circulatory system.

The series of observations on the pulse-rate of Annie M'D., as affected by the saline baths, and shown in detail in the accompanying table (p. 356), may be summarised as follows:—

1. *During the bath*—

Pulse-rate accelerated,	. . . .	21 times.
Do. unaltered,	. . . .	5 times.
Do. retarded,	. . . .	5 times.
	In	31 observations.

2. *Immediately after the bath*—

Pulse-rate accelerated,	. . . .	19 times.
Do. unaltered,	. . . .	2 times.
Do. retarded,	. . . .	12 times.
	In	33 observations.

3. *Half an hour after the bath*—

Pulse-rate accelerated, ...	13 times.
Do. unaltered, ...	2 times.
Do. retarded, ...	15 times.
	In 30 observations.

If we take the immediate and the remote effects of the bath upon the pulse-rate together, we find—

4. Pulse-rate accelerated, ...	53 times.
Do. unaltered, ...	9 times.
Do. retarded, ...	32 times.
	In 94 observations.

It is to be noted that the pulse-rate was always taken in the recumbent posture, in the bath and out of it; and it will at once be seen that, as regards the rapidity of the pulse, this case followed no general rule. Indeed, taken over all, the pulse-rate was accelerated and not retarded as the effect of the saline baths. In the cases of Annie J. and Agnes D. we could only observe the effects of one saline bath. In both the pulse-rate was accelerated by a few beats after the bath. So far, then, as our observations go, there is no notable slowing of the pulse to be recorded as the immediate or remote result of the baths in our cases, and this is certainly contrary to the experience usually recorded.

As regards the other characters of the pulse, they were investigated both by the finger and the sphygmograph, and certainly by neither method could any very striking alterations be made out as the result of the baths, either immediately or remotely. I show you a large number of pulse tracings, and you will note that, on the whole, but little change in the character of the pulse is recorded from the beginning to the end of the treatment. Sometimes the tension, as indicated by the tracing, is slightly increased; at others slightly diminished.

The influence of the resisted movements on the rate of the pulse was not so fully studied. In the case of Annie M'D. the pulse-rate was, on the whole, slightly retarded; in the case of Annie J. slightly accelerated, as the result of the movements.

I have never been able to satisfy myself of the presence, as the result of the baths, of those striking alterations in the area of cardiac dulness which have been described by Schott, Bezly Thorne, Saundby, and others; and I am quite sure that the position of the apex beat was never altered as the immediate result of a bath. I think it quite impossible to place any reliance upon the mere variation of the margin of cardiac dulness as an indication of change in the size of the heart. Of this I am certain, that any slight diminution in the area of cardiac dulness which I may have been able to make out in the case of Annie M'D. after a bath—and I did note an alteration in the left border on one or two occasions—was much more likely to have been due to changes in the volume of the stomach or lungs than to any shrinking of the cardiac wall. And this was borne out by the circumstance that the position of the apex beat remained the same.

In conclusion, I have now briefly to consider the value of the Schott method as a therapeutic agent in the treatment and cure of valvular disease of the heart of rheumatic origin.

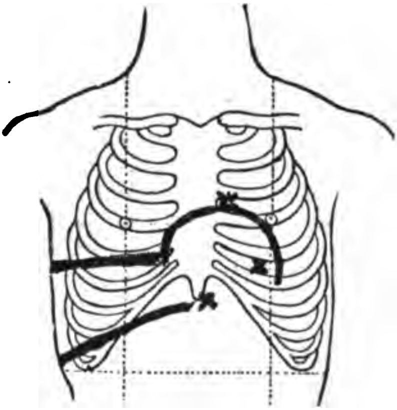

Fig. 17.—M. M'I. (not described in detail). Treated by rest. On admission.

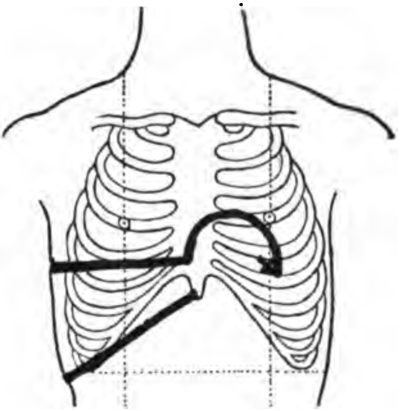

Fig. 18.—M. M'I. (not described in detail). Treated by rest. On dismission.

It is always to be remembered that we can only make use of the term *cure* as applied to valvular disease of the heart in a very limited sense. In most of these cases the cure consists not in a restoration of the diseased valve to a normal condition, but in the establishment and maintenance of a condition of compensation. In this sense we can, and frequently do, cure our cases of valvular disease, and may keep our patients in a state of comparatively good health for long periods of time. We have to enquire, then, what is the value of the Schott method of treatment in the cure of heart disease, and how it compares with other and longer established therapeutic measures. In answer to this question I have to say that I do not think we can accomplish, in the class of cases under consideration, anything by the Schott method that we cannot effect quite as easily, and often much more safely, by the old-fashioned plans of treatment. In the wards, along with the patients who were treated by the Nauheim system, we had a number of other cases of valvular heart disease, which were treated by prolonged rest in bed, careful dieting, and, when necessary, by the cautious exhibition of cardiac tonics. In some of those I was able to demonstrate to you even greater improvement than could be shown in the cases in which the Schott plan was tried. The area of cardiac dulness was diminished to a greater extent, the apex beat was brought nearer to the middle line, and the symptoms referable to the heart were more effectively relieved. In illustration of this I show you these tracings from another case of mitral disease which we have frequently examined together, and which was treated chiefly by rest in bed (see Figs. 17 and 18).

I go further, however, than this, and I say that in many cases of rheumatic valve disease the Schott system is a dangerous method of treatment. I have heard an enthusiastic advocate of its merits say that it "*brings out the rheumatism,*" and in one of our cases it brought out chorea as well. Now, I have no desire to bring out the rheumatism in treating my cases of cardiac valve disease, and I would advise you never to apply the Schott methods in the early stages of heart disease after rheumatism. You will accomplish far more by prolonged rest and careful dieting. Never mind about bringing out the rheumatism.

But I do not wish you to go away with the impression that there is no value in the Schott system. The tone of many of the papers in which its merits have been proclaimed would almost lead us to believe that it was being put forward as a specific in heart disease, capable of producing beneficial results to be obtained in no other way. This I do not believe, and I think that this manner of presenting the case for the Nauheim system is tending to blind physicians to its real value. Its essential value lies in the demonstration it has given that moderate and carefully regulated exercise is not a bad thing in the treatment of many cases of chronic valvular disease, and the attention it has lately excited has done much to remove the perhaps too prevalent impression that rest, and rest only, is the proper method of dealing with disease of the heart. But this is no new thing, and was plain to Oertel and many others long before the Bad Nauheim was so much spoken about. We have now come to see that when acute endocarditis has subsided, and we are dealing with a crippled valve in which all acute processes have ceased, everything that will maintain a high level of bodily health and muscular tone will have a good effect upon the heart, and enable compensation to be maintained. From this point of view, and with this object before us, we may find the Nauheim system, very carefully applied, of some value in a number of cases of cardiac valve disease. Beyond this I think it can have little effect, and as a *specific* in the treatment of heart disease of the kind we have been studying in this lecture, it is of no value whatever—it is useless.

BACTERIA IN OYSTERS.

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THE outbreak of typhoid fever amongst those who attended the Stirling County Ball (1st October, 1895) threw the oysters under suspicion as the carriers of the infection. Dr. Chalmers,[1] joint medical officer of health, Glasgow, undertook an exhaustive inquiry as to the cause of the outbreak, and (for reason given in his report) came to the conclusion "that the cause of enteric fever infection, which was unquestionably operative during the evening of the ball, was not conveyed to the halls in the oysters." On 15th November, 1895, at the request of the importer of the oysters, I undertook a bacteriological examination of oysters imported from the same oyster bed, and the results of my investigation, while agreeing with Dr. Chalmers' conclusion, are, I think, of sufficient interest from a bacteriological point of view to be worthy of publication.

The oysters when received by me appeared to be perfectly healthy and fresh. The shell was with difficulty opened, and the oyster, cut into small pieces by a sterilised knife, along with the fluid in the shell, was placed in a sterilised vessel, and a small quantity of sterilised water added. Rodet's, Vincent's, and Holz's methods were all tried for the purpose of isolation; but the bacteria to be described were isolated by Koch's plate dilutions, and by Widal and Chantemesse's[2] carbol-gelatine plates. Parietti's[1] method was also practised, and, if infallible (as claimed by Parietti), the typhoid bacillus should have been afterwards found, as distinct cloudiness was caused in the hydrochloric-phenol bouillon (to which one drop of the suspected fluid had been added) after standing twenty-four hours in the incubator. As will be seen hereafter, the bacillus typhosus was not discovered, but one was isolated which so closely resembled the bacillus typhosus in so many particulars that its identity might easily have been mistaken, and, in fact, only a year or two ago would, I think, have been regarded as the typhoid organism.

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[1] "Report on Certain Associated Cases of Enteric Fever following Stirling County Ball," by A. K. Chalmers, M.D., D.P.H. (Camb.) December, 1895.

[2] *Archives de Physiol.*, &c., ix, 1887.

Six distinct germs were isolated, of which four liquefied the gelatine, and two were non-liquefying. Of the two non-liquefying germs, one was the typhoid-like bacillus, and the other was a torula; whilst amongst those which liquefied the gelatine, colonies of bacillus fluorescens liquefaciens and of a vibrio were very abundant. At present the typhoid-like bacillus, the vibrio, and a bacillus isolated by Widal and Chantemesse's method will alone be described. First in importance comes—

(*A.*) THE TYPHOID-LIKE BACILLUS.

This bacillus was isolated by Koch's method. It was not found in the carbolic acid (·25 per cent) gelatine. Widal and Chantemesse assert that the bacillus typhosus is the only organism that can grow in this medium; Holz,[2] on the other hand, believes that this germ cannot grow in the presence of ·1 per cent carbolic acid; and Dunbar[3] declares that bacillus coli commune offers greater resistance to the carbolic acid than the bacillus typhosus. The bacillus (to be afterwards described) was isolated from the carbol-gelatine, so that I am inclined to believe (like Cassedebat[4]) that the resistance of the bacillus typhosus to carbolic acid "is a property which seems to be without value."

The colonies of the typhoid-like organism on the gelatine plates (second and third dilution) were fairly numerous. After careful examination with the naked eye and with the low power, gelatine tubes were inoculated from these colonies. Three of these tubes were under observation; and, whilst I believe that the bacilli in these tubes are identical, slight differences were noted which will be afterwards referred to, and hence, for purposes of description and reference, I will name these tubes I, II, and III. Unless specially mentioned, the following description refers to each of these cultures. The particulars concerning this bacillus are:—

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[1] As quoted by Schenk, *Elements of Bacteriology.*

[2] *Zeitschrift für Hygiene*, viii, 1890.

[3] *Zeitschrift für Hygiene*, xii, 1892.

[4] *Annales de l'Institut Pasteur*, October, 1890.

1. *Form and Colouration.*—Microscopically they are seen to be short plump rods, sometimes in pairs. Stained with methyl-blue, they take on the stain lightly, leaving clear space in centre. Stained with carbol-fuchsine, the whole bacillus is coloured. They do not stain by Gram's method.

2. *Motility.*—Hanging-drop preparations show that II and III are very motile, but the mobility of I is not great.

3. *Colonies on Gelatine Plates.*—Small punctiform colonies which are first seen about the third day. To the naked eye they have a slightly yellow tint, and, seen under low power, are brownish-yellow in colour, darker in centre, with granular surface. Some colonies have irregularly indented margins; others seemed to have a definite margin, but careful focussing showed slight irregular indentations. The gelatine was not liquefied.

4. *Gelatine Stab Culture.*—Thin whitish growth along surface, and slight whitish growth along track.

5. *Agar Streak.*—Broad band along streak, with irregular edges.

6. *Growth in Bouillon.*—Forty-eight hours after inoculation there was a slight deposit, but bouillon was not cloudy. Afterwards a slight pellicle formed on surface, and bouillon became cloudy.

7. *Growth on Potatoes.*—There was no visible growth, but surface was moist and glossy. Hanging-drop preparations made with particles from II and III showed numerous bacilli possessing very lively movement, but the motility of I was not so great.

8. *Growth in Sterilised Milk.*—The milk was not coagulated till late. Tubes were inoculated on 30th December, 1895, from I, II, and III. The tube inoculated with III was coagulated on the 13th January; that with II on 2nd February; while that with I is not yet coagulated (4th March, 1896). The milk in all three cases became slightly acid.

9. *Indol Reaction.*—None of them gave the indol nor the nitrous-indol reactions.

10. *Ferment Test.*—Glucose bouillon in fermentation tube (Th. Smith's[1]) was inoculated, but no gas was produced. The bouillon became acid. No gas was produced in lactose bouillon.

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[1] *Centralblatt für Bakteriologie*, vii, 1890.

11. *Optimum Temperature.*—All three thrive well at room temperature, but grow slowly at 37° C.

12. *Inoculation of Animals.*—A guinea-pig inoculated with 4 c.cm. of a twenty-four hours' bouillon cultivation of II died within forty-eight hours, but no bacilli were found in the spleen, &c. White mice inoculated with I, II, and III (2 c.cm.) were evidently inconvenienced for a few days, but survived. The experiments on animals were performed by Dr. Workman, professor of pathology, St. Mungo's College, Glasgow, to whom I here express my gratitude for performing these experiments, and also for confirming some of my observations.

COMPARISON.

Bacteriologists are agreed that the bacillus typhosus of Eberth bears a striking resemblance to the bacillus coli commune of Escherich; but the majority are agreed that the non-coagulation of milk (Dunbar,[1] Petruschky,[2] Widal and Chantemesse,[3] &c.), the non-production of gas in glucose bouillon (Th. Smith,[4] Welch,[5] &c.), and the negative indol reaction (Péré,[6] Kitasato,[7] Lewandowsky,[8] &c.), are properties possessed by Eberth's bacillus and not by Escherich's, and are sufficient points of distinction for differential diagnosis. It is evident, therefore, that the bacillus coli commune may be at once excluded, and that we have only to compare the bacillus under discussion with the bacillus typhosus and the pseudo-bacilli which at different times have been described by different observers. Before introducing the pseudo-typhoids, it is evidently of the first importance to decide whether this oyster-found organism is identical or not with the bacillus of Eberth.

(*a*) *Points of Resemblance.*—Morphologically the two are identical; both are motile, both take on the aniline colours slightly, and both are decolorised by Gram's method. Neither of them liquefy gelatine; and the gelatine-plate colony, the gelatine-stab culture, and the agar-streak culture are somewhat similar. Slight differences might be pointed out in these media cultures, but the growth of the bacillus typhosus in gelatine and agar are not sufficiently characteristic to be of much value for differential purposes. Both grow similarly in bouillon; neither of them coagulate sterilised milk until late, and both make the milk acid. The growth of the bacillus typhosus on potato is very characteristic, and is recognised by Günther[1] and others as of the greatest diagnostic importance. The growth of the oyster bacillus on potato is similar to that of the bacillus typhosus. Neither give the indol reaction; neither produce gas in glucose or lactose bouillon; and both render the glucose bouillon acid.

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[1] *Zeitschrift für Hygiene*, xii, 1892.
[2] *Centralblatt für Bakteriologie*, vi, 1889.
[3] *Societé de Biol. Paris*, November, 1891.
[4] *Centralblatt für Bakteriologie*, vii, 1890.
[5] *Medical News*, Philadelphia, 1891.
[6] *Annales de l'Institut Pasteur*, 1892.
[7] *Zeitschrift für Hygiene*, vii, 1889.
[8] *Deutsche Med. Wochenschr.*, 1890.

(*b*) *Points of Difference.*—The oyster bacillus differs from the bacillus typhosus in that (1) it may be virtually regarded as non-pathogenic to animals; (2) it does not seem to possess as many flagella; and (3) it has a different optimum temperature.

Too much stress must not be laid, however, upon its non-pathogenesis. Whilst it is the case that animals inoculated with the bacillus typhosus frequently die from septicæmia, still we must remember the conclusions of Sanarelli,[2] who conducted a long series of experiments on animals with this bacillus, and who states that "the bacillus of typhoid fever (human), such as one obtains directly from sick persons, shows little activity towards animals." He further remarks, "The rapidity with which a typhoid virus, even very active, loses its pathogenic power, if it is not cultivated without interruption in the animal organism, tends to show that the bacillus of Eberth is endowed with a very unstable virulence." Vincent,[3] as a result of his experiments, declares that if a rabbit be inoculated with 1 c.cm., or even more, of a ten-hours' boullion culture, "it is very rare that one obtains a fatal result. The rabbit is little disturbed in its general health."

The bacillus typhosus, in the active state, can usually be shown to possess from eight to twelve flagella. Staining by Nicollé's modification of Löffler's method, I have been able to show that the oyster organism possesses from one to four, but, as a general rule, the results of staining were entirely negative. Still, flagella are easily shed, and the number probably corresponds with the degree of liveliness. "I have had," writes Sanarelli,[4] "species of bacilli coli commune endowed with extreme motility, and of typhoid bacilli with imperceptible movements." One can imagine that these sluggish typhoids possessed very few flagella, but, unfortunately, Sanarelli does not enlighten us on the subject.

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[1] *Einführung in das Studium der Bakteriologie*, 1893.

[2] *Etudes sur la Fievre Typhoide Experimentalé*, 1892.

[3] *Annales de l'Institut Pasteur*, 1893.

[4] *Ibid.*, 1892.

Whilst the bacillus typhosus thrives at room temperature, its optimum temperature is 37° C. On the other hand, the oyster bacillus thrives best at room temperature, and grows but slowly in the incubator. This is *the great point of difference* between the two germs, and is sufficient, in itself, to enable us to decide that the oyster organism is not identical with the bacillus typhosus of Eberth. The other points wherein they differ are of value in supporting this conclusion. We must therefore regard the germ we have been considering as one of the pseudo-typhoids.*

COMPARISON WITH A FEW PSEUDO-TYPHOID BACILLI.

It may be of interest briefly to compare this bacillus with the best known pseudo-typhoids—viz., those of Sanarelli, and those of Cassedebat.

Sanarelli[1] found in a conduit of water at Rome (where typhoid fever is very prevalent) "a considerable quantity of typho-morphic colonies, and amongst them, bacilli very motile, which did not give the indol reaction, which did not coagulate milk, and which did not ferment the lactose." "I have convinced myself," he says, "that it was not the true bacillus typhosus, only because it was impossible to render them pathogenic to animals. In spite of all attempts, the most varied, they remained inoffensive saprophytes." Sanarelli does not state the optimum temperature, otherwise his pseudo-typhoid is somewhat similar to the oyster organism.

Cassedebat[2] isolated three pseudo-typhoids from the drinking water of Marseilles (a hot-bed of typhoid fever), and all his efforts to isolate the true bacillus failed. His pseudo-typhoids resembled the bacillus typhosus in most particulars, the chief difference being that they had different reactions on bouillon and milk to which a small quantity of the different aniline dyes had been added (Nœgerath's[3] process as practised by

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* Recognising the importance of this decision, I sent cultures of this germ to Dr. Kanthack, bacteriologist, St. Bartholomew's Hospital, and to Dr. V. D. Harris, Laboratories, R.C.P. and S., London. I likewise wrote to my teacher, Dr. Günther, Hygienic Institute, Berlin, stating wherein it resembled and wherein it differed from the typhoid germ. These bacteriologists agree that the oyster organism is not the bacillus typhosus of Eberth. To these gentlemen I here express my gratitude for their courtesy and kindness.

[1] *Annales de l'Institut Pasteur*, 1892.

[2] *Ibid.*, 1890.

[3] *Forschritte der Med.*, vi, 1888.

Holz[1] and others). For the purposes of comparison, it is necessary to state not only the reactions produced by the oyster-pseudo, but likewise those produced by the bacillus typhosus and Cassedebat's three pseudo-typhoids (as given by Cassedebat).

(*a*) *Bouillon coloured by Fuchsine*—

Bacillus Typhosus. Cloudiness followed by decoloration, pellicle with grey deposit.

Cassedebat's No. 1. Cloudiness, decoloration, pellicle, yellow deposit.

Cassedebat's No. 2. Little or no cloudiness, decoloration, thick pellicle.

Cassedebat's No. 3. Cloudiness and abundant deposit.

Oyster-Pseudo. Slight decoloration, no pellicle, slight deposit.

(*b*) *Bouillon coloured with Methyl-Blue*—

Bacillus Typhosus. Cloudiness, little decoloration, whitish pellicle, white deposit.

Cassedebat's No. 1. Cloudiness, flocculence, deposit, no decoloration.

Cassedebat's No. 2. Cloudiness, flocculence, yellow deposit, pellicle, decoloration.

Cassedebat's No. 3. Becomes yellow except at upper part, pellicle, flocculence.

Oyster-Pseudo. Cloudiness, whitish deposit, yellowish except at upper part, tendency to form a pellicle. Afterwards the upper blue portion changed to green, and then became yellowish throughout, with greenish fragmentary pellicle and dirty brown deposit. A month after inoculation bouillon became completely decolorised.

(*c*) *Bouillon coloured with Chrysoidine*—

Bacillus Typhosus. Slight decoloration, yellow pellicle, greyish deposit, cloudiness.

Cassedebat's No. 1. Great decoloration, yellow deposit, slight cloudiness.

Cassedebat's No. 2. Decoloration, yellowish pellicle and deposit, slight cloudiness.

Cassedebat's No. 3. Slight decoloration, yellow pellicle, golden deposit, great cloudiness.

Oyster-Pseudo. Changed to sherry colour, thin glittering pellicle, slight deposit, no cloudiness.

(*d*) *Milk with Fuchsine*—

Bacillus Typhosus. Decoloration.

Cassedebat's No. 1. Changed to chocolate-au-lait colour.

Cassedebat's No. 2. Abundant yellow deposit, thick pellicle.

Cassedebat's No. 3. Coagulation without changing appearance.

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[1] *Zeitschr. f. Hygiene*, viii, 1890.

Oyster-Pseudo I. Not decolorised, whitish layer on surface, no deposit.

Oyster-Pseudo II. Completely decolorised, layer on surface white and pinkish below, abundant pinkish deposit.

Oyster-Pseudo III. Fluid reddish below, decolorised in centre of tube, and cloudy above, pinkish deposit. Later, became cloudy throughout of brownish-red colour.

(*e*) *Milk with Methyl-Blue*—

Bacillus Typhosus. No modification.

Cassedebat's No. 1. Yellow colouration, red deposit, surmounted by green zone.

Cassedebat's No. 2. Liquid changed to beer colour, afterwards to colour of wine.

Cassedebat's No. 3. Very slight decoloration, especially at upper part.

Oyster-Pseudo. Completely decolorised, firm pellicle, white deposit.

(*f*) *Milk with Chrysoidine*—

Bacillus Typhosus. Changed to yellow colour, milk coagulated twelfth day.

Cassedebat's No. 1. Changed to yellow colour, dense pellicle.

Cassedebat's No. 2. Aqueous layer, slightly yellow at upper part. No further change.

Cassedebat's No. 3. Aqueous layer on surface, milk unchanged at bottom.

Oyster-Pseudo I and III. Changed to yellow colour, no deposit, no coagulation.

Oyster-Pseudo II. Completely decolorised, whitish deposit, yellowish layer on surface.

A glance at this comparative statement is sufficient to show that the oyster pseudo-typhoid gives reactions quite distinct from either the bacillus typhosus or Cassedebat's three pseudo-typhoid bacilli, and that if any value, for differential diagnosis, is to be attached to these reactions, then clearly we have three distinct oyster pseudo-typhoids (compare reactions of milk with fuchsine inoculated from tubes I, II, and III, as given above). But, in my opinion, this method is not sufficiently exact to be of much value. Much must depend upon the quality and condition of the milk or bouillon (degree of alkalinity, &c.), upon the quality of the dye, as well as upon the number, and the degree of vitality and virulence of the organisms introduced. After all, we do not know much about the life history of Eberth's bacillus typhosus. The fact that it may coagulate milk after different periods of time (it may be twelve days, a month, or later), would seem to indicate that this bacillus possesses different bio-chemical properties at different times, and certainly deprives the coloured milk reactions of much of their value. That we may have bio-chemical varieties of the bacillus typhosus is very possible. Already, Sanarelli[1] has described (1894) two forms of bacillus typhosus "of an authenticity well established," which are morphologically different—viz., short, thick bacilli, and long, thin rods. It has been shown by Metchnikoff[2] and others that we have varieties of the cholera vibrio, differing morphologically, and in degree of virulence, &c.; and M. Péré[3] and others have proved that there are bio-chemical varieties of the bacillus coli commune. There are also varieties of the streptococcus (Pasquale[4]) and other organisms. "It is incontestable," writes Metchnikoff,[2] "that the more deeply one studies the bacterial forms, the more difficult it becomes to separate them into very distinct species; in place of that, we find larger or smaller groups." "It is not astonishing that in these conditions bacteriological diagnosis may present difficulties almost insurmountable."

(*B.*) VIBRIO.

Owing to the circumstances which led to the investigation, the vibrio ranks second in interest on account of the experience of Ivanoff,[5] who, in a typical case of typhoid fever, failed to find the bacillus typhosus, but found vibrios in great abundance in the fæces of the patient. The vibrio of Ivanoff was afterwards examined by Metchnikoff,[1] who gave the following verdict:—"I have examined in detail the vibrio of Ivanoff, and I do not hesitate to rank it in the group of choleraic vibrios." He furthermore remarks:—"It has been determined, after many trials, that individuals whose fæces contained a large number of incontestable choleraic vibrios, were not able to have cholera. We do not see why the immunity should not be able to be associated with a sensibility towards typhoid fever."

The particulars concerning this vibrio are—Bacilli distinctly curved, larger than Koch's cholera vibrio, and resembling closely the Finkler-Prior bacillus. They are very motile. They are stained by the ordinary aniline dyes, but are decolorised by Gram's method. The colonies on the gelatine plate were numerous, and resembled closely the colonies formed by Koch's vibrio. They liquefied the gelatine slowly, much slower than the cholera vibrio, although, when first isolated, the liquefaction proceeded more quickly than it does now. After a time, the appearance produced in the gelatine tube is very similar to that produced by the vibrio of cholera. It does not give the "cholera-red" reaction, and it is non-pathogenic to white mice. On agar it forms a greyish strip, and on potato it does not grow at room temperature, but in incubator forms a brownish plot. It coagulates milk, and renders bouillon cloudy. While resembling morphologically the Finkler-Prior, and while its growth on gelatine plate and in gelatine tube bears a striking resemblance to the growth of Koch's cholera vibrio, still its slow liquefaction of the gelatine, the absence of the indol reaction, and its non-pathogenesis are sufficient to distinguish it from both of these. Also, bearing in mind Metchnikoff's verdict, it can have no identity with the vibrio of Ivanoff, and thus we have no reason to suspect that this vibrio played any part in the causation of the fever. From the vibrios Weibel, Milleri, Deneke, Metchnikoff, and Dunbar, it is distinguished by the fact that all these liquefy the gelatine quickly; from the vibrio Bonhoff because the latter does not liquefy the gelatine at all; from the vibrio terrigenus Günther in that the latter is coloured by Gram's method; and from vibrio aquatilis Günther, which, in the gelatine stab culture, grows only on the surface, &c. It resembles the vibrio berolinensis in its slow growth, its likeness to Koch's comma-bacillus in its being decolorised by Gram's method, and in its growth in gelatine stab cultures, &c.; but the latter gives the nitrous-indol reaction, and is pathogenic to animals. Of all the vibrios which have been at different times described, its identity comes nearest to the vibrio Danubicus, which was isolated in 1892 by Heider from the water of the Danube at Vienna. Heider's vibrio likewise bears a striking resemblance to the vibrio cholera, its growth on gelatine plate and in stab culture being somewhat similar to that of Koch's. On agar, on potato, in milk, and in bouillon, it behaves similarly to the oyster vibrio; it does not give the nitrous-indol reaction; is non-pathogenic; and morphologically is slightly larger than the cholera vibrio.

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[1] *Annales de l'Institut Pasteur*, 1894.

[2] *Recherches sur le Cholera et les Vibrios*, 1893 and 1894.

[3] *Annales de l'Institut Pasteur*, 1892.

[4] Quoted by Sanarelli, *Annales*, 1894.

[5] *Archiv für Hygiene*, xx, 1894.

(*C.*) BACILLUS.

This bacillus is only of interest on account of having been isolated from the carbol-gelatine plate, and on account of the peculiar geometrical figure formed in the colony. The colony had no definite margin. There was a dark-brown circular area in centre of a peculiarly shaped triangular area, the sides and curves of which seemed mathematically exact. This area was of a light brown colour, and was bounded by a bright yellow band. Outside this was granular and dirty yellow. Only one colony was seen on plate (Fig. 1).

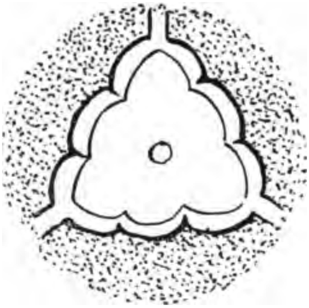


FIG. 1.

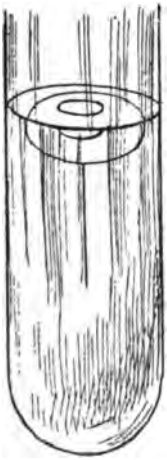


FIG. 2.

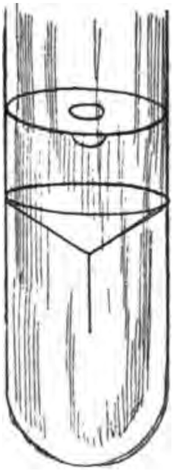


FIG. 3.

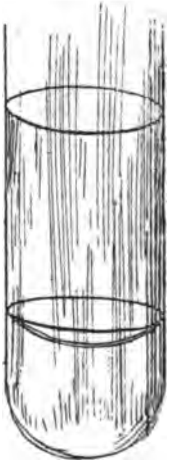


FIG. 4.

FIG. 2.—Appearance after four days' growth.
FIG. 3 — ,, ,, eight ,,
FIG. 4.— ,, ,, sixteen ,,

It liquefied the gelatine quickly. In gelatine tube, four days after inoculation, there was a saucer-like area of liquefaction, with air-like bubble on surface, and whitish zooglœa on floor of liquefied area. There was a slight whitish growth along stab. After eight days, one-fourth of gelatine was liquefied, with air-bubble-like depression on surface, and the zooglœa on conical floor of liquefied portion was of a yellowish colour. The liquefied gelatine was slightly greenish in colour. There was slight growth along remainder of stab. After sixteen days the gelatine was liquefied the whole length of stab. At bottom of liquefaction, zooglœa formed saucer-like layer (Figs. 2, 3, 4).

Microscopically, it was seen to be a short bacillus.

Obituary.

ALEXANDER MACGLASHAN ANDERSON, M.D., OF DUNDEE.

DR. A. M. ANDERSON, formerly Medical Officer of Health for Dundee, died there at his residence, 26 South Tay Street, on the afternoon of Saturday, the 28th February last. He had been in failing health for eighteen months, and in May last he proceeded to London for the purpose of having an operation performed in connection with an internal complaint from which he suffered. The operation, however, was only palliative in its nature, and during the last months of his life he suffered great pain.

Dr. Anderson was born at Tummel Bridge, Perthshire, and was 52 years of age at the time of his death. He received his medical education at the University of Glasgow, where, after a distinguished career as a student, he graduated as M.D. in 1864. He served for a time as one of the medical officers of the Glasgow Fever Hospital, and in 1866 he was appointed Medical Superintendent of the Dundee Royal Infirmary. Soon after this he settled in private practice in Dundee, and in 1882, in succession to the late Dr. Pirie, he was appointed Medical Officer of Health for the city, an office which he held till July last, when failing health forced him to resign. About ten years ago Dr. Anderson married a daughter of the late Mr. William Moon, of Edenfield, by whom he is survived. His funeral, which was a public one, took place on the afternoon of the 3rd March last, and was attended by the magistrates and representatives of the Town Council, and nearly all the members of the medical profession in Dundee.

Dr. Anderson was chiefly known as the Medical Officer of Dundee, and much of the improvement which, of recent years, has been effected in the sanitary condition of the city was directly due to his untiring energy and zeal. The erection of the new Fever Hospital at King's Cross was the result of his incessant advocacy of the necessity for it, and in all matters connected with its thorough equipment and successful working he ever took a deep interest. Along with the late Professor Carnelley, of University College, and Dr. J. S. Haldane he carried through a series of important experiments on the air of dwellings and schools. The results of these experiments excited much interest in scientific circles, and were eventually published by the Royal Society. In the treatment of enteric fever by salol, Dr. Anderson took great interest, and believed that by the early administration of this drug the fever could be cut short at the fifteenth day. Some of his papers on the treatment of typhoid by salol have been published in our pages.

CURRENT TOPICS.

"MEMORIALS OF THE FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW."—On another page will be found a notice of Mr. Alexander Duncan's erudite and exhaustive history of the Faculty from its foundation in 1599 down to 1850. Not the least important portion of the work is the roll of Fellows, which cannot fail to be of the greatest interest to all Glasgow medical men. We heartily congratulate the author on the completion of his task.

A RÖNTGEN LABORATORY has been instituted in the Royal Infirmary as the result of the efforts of Dr. John Macintyre. The Directors have appointed two assistants to the electrical department—Drs. Archibald Faulds and George M'Intyre. The electrical apparatus in the hospital is now very complete, having everything required for medical and surgical purposes, and an electric lantern-microscope has been supplied. Photographs with the Röntgen apparatus have already been taken in the hospital, and it will now form a part of the ordinary work of the electrical department.

Guy's Hospital.—The Treasurer acknowledges with grateful thanks the receipt of a donation of 100 guineas towards the special re-endowment fund from the Liebig's Extract of Meat Company, Limited.

Memorial to the late Dr. C. C. Lee, of the New York Post-Graduate Medical School.—The Directors of the Post-Graduate Medical School and Hospital have named one of their wards in memory of the late Dr. Charles Carroll Lee, who was for many years a professor in the institution. They have placed a tablet in the ward, giving the names of those who combined to contribute the ten thousand dollars which was given for the purpose of the memorial. The Faculty of the institution have participated largely in the memorial gift.

Death of Professor Vulliet.—We have been informed that Professor Vulliet, President of the International Congress of Gynæcology and Obstetrics, to be held in September at Geneva, died in the month of March last.

MEETINGS OF SOCIETIES.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

Session 1895-96.

Meeting IV.—13th January, 1896.

Dr. Donald Fraser *in the Chair.*

I.—DISEASE OF FLOOR OF FOURTH VENTRICLE, ETC.—TREATMENT BY CONTINUOUS CURRENT THROUGH MEDULLA OBLONGATA.

By Dr. Alex. Robertson.

W. F., age 33, stoker in steamboat, first admitted into Infirmary in August, 1888, in Dr. Robertson's absence. The report then taken bears that his family history was unknown. He had been six years in West Indies. No ague; denies syphilis; not addicted to alcoholic excess. His illness had lasted six months, and its features had been excessive thirst and increase in urine, with emaciation, his weight having fallen from 12 st. 8 lb. to 9 st. 11 lb. since his illness set in. The specific gravity of urine was 1000; no sugar or albumen; reaction neutral; quantity not recorded. In the course of the next month he had several attacks of defective articulation, lasting from six to twelve hours. They were preceded by headache and giddiness, and accompanied by defective power of the right side of the face, which has continued since.

In the beginning of October he became subject to flushings of the right ear and back part of right cheek, while the left ear and face generally were very pale and cold. The daily quantities of urine from 1st to 26th October ranged from 150 oz. to 290 oz. Its specific gravity was from 1002 to 1006. There was never any trace of albumen or sugar.

Dr. Fergus's report as to the state of the eyes was to the effect that there was "a low form of neuro-retinitis, not unlike the œdema of the retina found in almost all cases of chronic Bright's disease."

On 26th October it was noted that he complained of a flow of water from both eyes, and a watery discharge from both nostrils, which continued for two days, without increase of temperature or other symptoms of catarrh. His temperature in axilla up to this time (26th October) was from 97° to 98° F. The treatment had been varied, beginning with potass. iodide and mercurial inunction, and afterwards different nervine tonics; but it could not be said that there was distinct improvement in patient's condition except that his weight had increased to 10 st. 5½ lb.

On 27th October it was resolved to pass a current of electricity through the medulla oblongata, the positive pole being applied to the occipital region and back of the neck, and the negative to the front of the spine, the electrode being passed along the floor of the nostril. This was continued every second or third day till he left the Infirmary, which was on the 15th December. Beginning with half a milliampere, it was increased to five milliamperes. Occasionally he complained a little of headache after the current was passed. On two or three occasions the pulse was from four to six beats fewer at the close of the application—usually about seven minutes—compared with its beginning. Medicinal treatment was stopped when the electricity was commenced.

The results were as follows:—The quantity of urine, with the exception of one day, steadily diminished in quantity. On the 14th November it was 120 oz; 20th, 109; 24th, 84; 2nd December, 78; 12th, 82; 13th, 82; 14th, 86.

Slight attacks of defective articulation and occasional flushings of right side of face occurred, but at longer intervals. At date of dismissal his pulse was 64, and was not affected by the passing of the current. His temperature was normal. He stated that it was fully a fortnight since he had flushings on right side of face or ear. His weight had increased from 9 st. 11 lb. to 10 st. 10½ lb. His general tone was much improved, and he looked better.

Patient was readmitted on 21st July, 1892. States that he continued well till December, 1891, when pain in occipital region returned, with giddiness and weakness of left leg. Six weeks afterwards left arm also got weak, and about a week later right arm slightly. Two months ago defect of speech returned for five or six hours, and again returned the day before admission; but it did not persist. No albumen or sugar in urine, which is normal in quantity. Heart and lungs normal; pulse 64, regular. He left after a few days' residence.

On 1st October, 1895, the patient was admitted for the third time. He had been fairly well till about four months ago, with the exception of occasional giddiness. During these months the giddiness had been worse—once he had fallen down in the street unconscious. A second time giddiness and unconsciousness supervened, when he again fell on the street, was taken to the police office, and from it removed to the surgical side of the Infirmary. After about a week's treatmenthe was sent to Dr. Robertson's wards. On his admission there his mental condition was less active than on previous residences. The report bears that the left arm and leg were weak, but power was not lost; right side of face weak. Patellar clonus was present in both legs. Pulse was 72, small, deficient in tension. Urine 1018, slightly acid, no albumen.

Treatment.—Various nervine tonics were tried, but without much benefit. On 29th November he was put on nitrate of silver, and the continuous current through medulla oblongata every second day, with tinct. ferri perchlor. after meals.

Now (13th January, 1896) power of both arm and leg is restored. He presses the dynamometer to 33 lb. with right hand and 32 with left. The urine is normal in quantity, but for almost a fortnight in the early part of treatment it was in excess. There has not been any recurrence of the flushings since his first residence in Infirmary. There have been no attacks of impaired articulation during his present stay in hospital. He left the hospital on this date.

Professor George Buchanan said he noticed there was no mention of any defect in the hearing. This was not in accordance with our knowledge of the anatomy of the region. The floor of the fourth ventricle was riddled by the roots of the auditory nerve, and if the floor was affected, one should also expect some affection of the auditory centre.

Professor M'Call Anderson said there was an element of crossed paralysis in this case, which pointed to a certain amount of implication of the lower third of the pons varolii.

Dr. James Finlayson said that the cause was difficult to get at in such cases. He had seen a case of diabetes insipidus, vomiting set in, and there was paralysis of the sixth nerve, all these being suggestive of brain affection, but nothing was made out in the locality of the fourth ventricle. It was possible that small lesions might repair, and thus fail of recognition.

Dr. Workman said he had seen a case of tumour of the pons and no symptom whatever indicating its presence. He had also seen cases with the symptoms of disease in this region, and no lesion was found afterwards. This might be explained by supposing the lesion to have been minute and repaired; also, its minuteness might make the lesion easily overlooked.

II.—CASE OF WORKMAN'S PARALYSIS.

By Dr. Alex. Robertson.

J. Q., age 50, shoe factory worker, admitted into the Royal Infirmary on 17th November, 1895, complaining of pains in the arms, hands, legs, and feet, with difficulty in walking.

His illness began four months ago. At his employment he worked a machine, constantly turning a handle with his left hand and at the same time pulling wet leather through the machine with his right. His right hand was first affected with pain, which extended up the arm to the elbow. A week or two afterwards the left hand and arm became affected in a similar way. His power of grasping was impaired, and he was thus partially disabled from working. Two months later pain also began in the feet, and extended up the legs, but not above the knees. At his occupation he is for long periods on his feet, but when the pain set in he was laid aside from work. Previous to this illness he was a healthy man, has been free from specific disease, and is not addicted to alcohol. He has not had any girdle sensations.

State on Admission.—He is an intelligent, healthy-looking man. He complains of severe pains of a shooting character in upper extremities from the shoulders to the hands, but states that he is sometimes entirely free from them. They are worst at night in bed. He has a numb feeling in fingers. Grasp of hand is very feeble, and he cannot move the index of the dynamometer with either hand. Tactile sensation in hands and arms, though not absent, is impaired. On the front of the forearm he cannot recognise the points of the æsthesiometer nearer than about 3½ in. There is a glossiness of the skin on the back of the hands, with slight swelling. He has considerable pain on pressure along the course of the nerves both in fore and upper arms. He can walk fairly well, but states that when he treads on any inequality of the ground it causes much pain in the legs. This pain is severe if attempt is made to bring out the ankle clonus. He has numbness at the points of the toes. The reflexes, both superficial and deep, are nearly normal. The cranial nerves are not affected. Urine, specific gravity, 1024; acid, no albumen or sugar. Temperature normal.

The pains continued very severe during the first ten days after admission notwithstanding the use of antipyrin, antifebrin, and exalgin. On 23rd November the continuous current was prescribed to arms and legs, and the dose of the nitrate of silver which was given on admission was increased.

On 5th December there is the following note by Dr. Robertson:—"The power of the hands is improved. He can move the dynamometer to 14 lb. with both hands. The shooting pains have almost disappeared. There is still a little numbness in fingers and toes." In a note by him on 27th December, it is stated that the response of the muscles on the fore and upper arm both to Faradic and continuous currents was normal.

Patient left the hospital on the 30th December, 1895, free from pain, but the motor power of his arms, though greatly improved, was not fully restored. He agreed to come to the Infirmary every second day for further electrical treatment.

Dr. Workman said the patient had swelling of the knuckles on first being seen, and at the time he regarded it as rheumatic.

Dr. Robertson said the question of rheumatism was carefully considered; there was no affection of the joints, and all the symptoms pointed to *neuritis* rather than rheumatism.

III.—CASE OF A CRETIN CHILD UNDER THYROID TREATMENT.

By Dr. Finlayson.

Dr. Finlayson showed a cretin child whom he had formerly brought before the Society, while under treatment by thyroid about two years ago (9th April, 1894). Even then, after a few months' treatment, the child had improved greatly, and had lost much of the distinctive physiognomy of cretinism. Since then the treatment had been pursued, but in an intermittent and rather unsatisfactory manner, as, after dismissal, the mother had been unable to persist in the use of the thyroid extract, or at least did not do so. The child had been sent for repeatedly, and the present is the fourth residence in the hospital, making in all about nine months of steady treatment and care in the wards since 24th October, 1893. The other seventeen or eighteen months were largely lost; during perhaps three or four months partial treatment was carried out at home, but the surroundings there were very unfavourable.

Although this state of matters was very unfortunate as regards the child, it has afforded clear proof of the value and potency of the treatment; for every time the treatment was begun the child underwent a rapid and striking improvement, and every time the treatment was neglected the child relapsed into its former cretinoid appearance, although it never became so bad as it was at first.

When admitted on 24th October, 1893, the child was 4 years and 10 months old; the height, or rather the length, for she could not stand, was 28½ inches; in April, 1894, she was 30 inches; in April, 1895, she was 31¾ inches; in January, 1896, she is 32¾ inches. The growth is thus obviously going on, perhaps slowly; although, *at this age*, the growth is given in the tables as only about 4 inches in two years. Tracings of the skull around the most prominent parts, front and back, show now an increase both as regards length and breadth. As regards weight, the first effect of the treatment is to diminish the weight by removing the unnatural deposits under the skin of the abdomen and elsewhere. Thus, on admission, the weight in naked state was nearly 23 lb., while three months later it was only 19 lb. But in a growing child, and the cretin grew under the treatment, the weight naturally increases on this account; moreover, improved nutrition of the muscles makes up to some extent for the loss of the morbid subcutaneous deposit. The loss referred to is very well shown by the measurements at this last residence in hospital. The circumference of the chest at the nipples was—on 19th November, 1895, 22¼ inches; and on 30th December, 1895, only 21 inches. But the weight in October, 1893, was nearly 23 lb., and at 30th December, 1895, is now only 4 lb. more—*i. e.*, 27 lb., although she has grown 4 inches.

As regards the power of walking, when shown to the Society about two years ago she was able to go about in a new kind of carriage in the form of a "go-cart," which was then also shown; but she was unable to walk alone, and was still unable to walk quite alone in April, 1894, but on readmission in January, 1895, she was found to walk nicely without support.

The power of speech has also been developed, and although she could say some words when admitted in January, 1895, she has greatly improved in this respect, and on admission in November, 1895, was able to speak fairly well, and had acquired at home a selection of bad language, with which she favoured the nurses and children, but she is now forgetting it.

The change in the child at the first term of treatment was quite as notable as regards her mind as her body. The dull lethargic expression, with open mouth and tongue inclined to loll out, gave place to an appearance of interest in everything about her, and when she got the length of using the wheeled go-cart or carriage, her delight in rushing about in it was extreme. Concurrently with this, the features lost their coarseness. Similar changes were remarked every time she was readmitted and placed on the treatment, and during this last residence an improvement in the fineness of her hair has also been notable.

On admission she had seventeen teeth, the first having been cut when two years old. At present she has twenty teeth, all in very good condition.

A notable improvement has occurred in the hair, which was at first coarse and rather stubbly, but has now grown better, and has quite a soft feeling.

The treatment was by thyroid extract in tabloid form—at first only 1¼ grain per day, and then 2 grains. During her second admission 3 grains per day were given, but this was reduced on account of sickness and diarrhœa, a complication noticed more than once. In her third residence, 2½ grains per day were given, but this was only given on alternate days, or every fourth day as she improved. In this last residence, 2½ grains daily, or 5 grains on alternate days, had been given.

Dr. Finlayson showed also photographs of another cretin, much younger, who was put under treatment by thyroid when 22 months old, and in the course of a year had grown into the appearance and size of a healthy-looking girl. He referred to another girl who, at the age of 2 years and

8 months, had also been treated by him with thyroid, and her improvement, although not so great as the younger child, had also been most satisfactory.

Dr. Macphail asked if there was any relapse in the child's mental condition after discharge from hospital; and *Dr. Finlayson* said this was rendered apparent by the distinct improvement which took place after readmission.

Mr. H. E. Clark asked how long the thyroid treatment would have to be kept up, if during life the matter became rather serious. On a former occasion he had recommended experimental grafting of thyroid gland; if this could be managed permanent relief would be given.

Professor M'Call Anderson said he remembered Mr. Clark's recommendation, which was made in connection with a case of myxœdema. He thought the treatment would have to be kept up for life, and this was no worse than the prevalent habit of taking pills. To graft thyroid on to the peritoneum would involve a serious operation. He thought much was to gained by feeding with extract in hospital; the patient could be put to bed and the extract pushed with safety, and there might be an actual increase of weight due to the better feeding.

Dr. Newman remarked that he had been interested in the observations made by Mr. H. E. Clark. The question of the plantation of living thyroid from animals to other animals of the same species had been carried out experimentally, but without very much success. In most instances the peritoneal cavity was the situation selected upon which to plant the thyroid. To do a similar operation upon man involved a certain amount of risk, which a patient would be unwilling to run, unless with some guarantee that the operation would be successful ultimately and obviate the necessity of taking thyroid extract during his lifetime. His colleague, Dr. George S. Middleton, had a case similar to Dr. Finlayson's in his ward, and had asked Dr. Newman to see the patient, with a view of grafting living thyroid from an animal. What he purposed doing was, if the child's parents were agreeable, to produce an aseptic granulating wound, and into this wound to plant portions of living thyroid gland. The highly vascular granulating surface would form a much better soil upon which to plant the thyroid tissue than a serous surface would be, and there would also be the advantage that the patient would incur absolutely no risk.

Dr. Alex. Robertson said the thyroid treatment affected others than those depending on defect of the thyroid gland. In the Morningside Asylum cases there was no defect of the thyroid gland, yet the exhibition of this extract produced beneficial results.

Dr. Finlayson said that Mr. H. E. Clark's point was raised in connection with this child, more especially as continuous supervision of the patient was likely to be disturbed.

IV.—ACTINOMYCOSIS OF THE CHEEK AND NECK.

By Dr. D. N. Knox.

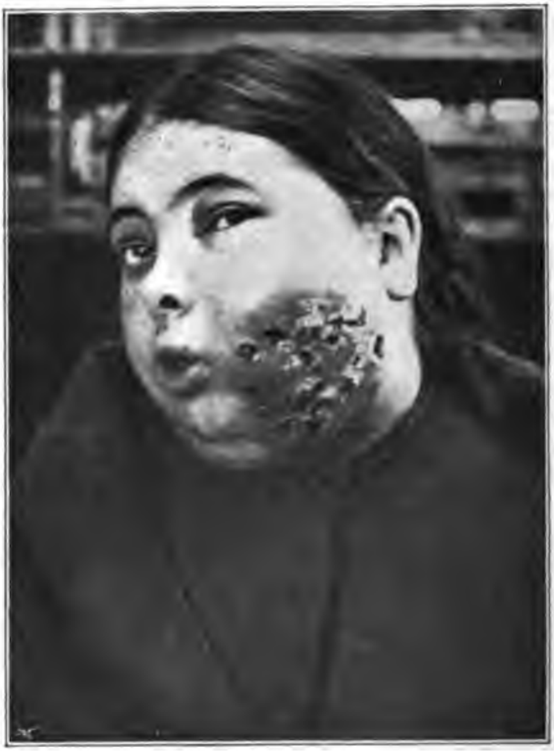
Since actinomycosis was first recognised in the human subject by Israël of Berlin in 1877, many cases have been described and recorded on the continent of Europe and in England, but, so far as I can learn, none have as yet been recorded in our journals as having occurred in Scotland. Cases of actinomycosis in cattle have been found by the veterinary surgeons in Glasgow, though these also are fortunately rare, not one having been seen in this district by the veterinary inspector for the last two or three years. The case I now bring before the Society is, therefore, the first case that has been recognised in the human subject in this district. The report will show that the disease was not recognised at first to be actinomycosis, because not suspected, and later, after its true nature was suspected, it was only by a long search, extending over six weeks, and by the able assistance of Dr. Workman, that proof of its nature was obtained.

The patient, a young married woman, aged 25, was admitted to the Royal Infirmary on 3rd October, 1894, suffering from a swelling of the left cheek of about four months' duration. She had been a farm servant up to her marriage four years before, and since that event she had frequently assisted in milking and other farm work. She had always been strong and healthy.

In June, 1894, she discovered a slight swelling in the inside of the left cheek, opposite the first molar tooth. A week later she showed it to a doctor, who incised it from the inside of the mouth. There was no evidence at this time of decay in any of the teeth, and there had not been much pain previous to the lancing. Afterwards, the pain became extremely severe. The doctor ordered her to poultice the cheek, and this gave some relief. More relief was obtained a week later by another incision of the cheek from the outside. The swelling continued to increase in size, and a few days later the doctor tried to extract a tooth, thinking in this way to give some relief, but the patient could not open her mouth sufficiently for this to be done. The poulticing was resumed, and was continued at intervals till her admission to the Royal Infirmary on 3rd October, 1894.

On admission there was a large firm swelling within the substance of the left cheek, infiltrating the tissues, and with a badly-defined margin. The swelling was rounded, about 4 in. in diameter, extending downwards over the base of the jaw, towards the chin, and outwards to the lobe of the ear. The skin covering it was of a dark purple hue. There were no external openings, but there were numerous small tubercles all over the surface. The mass seemed to be firmly adherent to the lower jaw. The first photograph shows fairly well the general appearance presented, except that there were no open wounds, these having been made by the sharp spoon. The morning temperature was 98·2°; evening, 99·8°. The general health was good, and the patient was only annoyed at the persistence of the discoloured swelling. The mouth opened fairly well, and, on passing the finger over the inside of the cheek, a slight projection marked the spot where the first incision had been made. The jaw did not seem much involved, but simply adherent to the inside of the mass. The opinion then formed was that the mass was either malignant (sarcoma) or syphilitic. To clear up the diagnosis, and, if possible, remove the swelling, the patient was anæsthetised two days after admission, and the tubercles opened with a Volkmann spoon and the mass thoroughly scraped out. The spoon went freely through the mass, and a soft, very vascular granulation tissue was removed. All that could be scraped off was removed, and the wounds were then thoroughly cleaned out and stuffed with iodoform gauze. The first effect of this was distinctly good. The diseased patch on the cheek became smaller, and the purple colour was lessened for a day or two.

Microscopic examination of the tissue removed showed that it had the structure of granulation tissue only, and, from the fact that it seemed to exist in pockets in the tissue of the cheek, I formed the opinion that the masses were of syphilitic origin. I was confirmed in this by the opinions of several surgeons who at this time saw the case. The patient was consequently put on the biniodide of mercury, and an iodoform dressing applied. During the month of October I repeated the scrapings twice under chloroform, and I was much struck after each operation by the rapidity with which the cavities seemed to fill up with fresh granulations, and, in spite of the scrapings, with the slow but gradual extension of the disease. The centre of the mass became quite hard and rather leathery, as if from the growth of connective tissue, but at the periphery the characteristic soft granulation tissue continued to be felt. On 3rd November, two days after another scraping, when the cheek was dressed, it was noted that, although the induration was not diminished, the general state of the diseased part was improved. Scraping was again resorted to on 19th November, and on 24th November. To check the rapid growth of granulation tissue after the last scraping, a strong solution of corrosive sublimate was applied to the diseased surface. But neither scraping nor the additional use of the escharotic produced any lasting effect, and the patient left the Infirmary, at her own desire, in the beginning of December rather worse than on her admission. During the last few weeks of her residence, the question of actinomycosis was considered, and the granulations were carefully scrutinised microscopically,



Second photograph shown at the meeting.

with a view to gaining proof of the presence of the actinomyces, but in every instance the scrutiny failed.

The patient returned to the Infirmary on 26th December, and the quest after the actinomyces was resumed, though without success. I at this date resolved to try the effect of iodine treatment of actinomycosis (introduced by Thomassen, of Amsterdam, in 1885, for cattle), and gave her quarter-grain doses of iodine dissolved in 5 grains of iodide of potassium. This was a week later increased to half a grain of iodine, thrice daily. The wounds were swabbed out daily with an etherial tincture of iodine, and dressed with iodoform gauze as before.

1st January, 1895.—The appearance of the patient at this stage is well seen in the second photograph, where you will note the great extent of the disease, the swelling of the eyelids, and the leathery appearance of the cheek. At this date, also, pains were complained of in the left temple, and there was a slight difficulty in swallowing.

5th January.—The cheek was again scraped.

21st January.—It was noted in the Journal that the progress of the disease is in no way abated. The surface is perhaps a little cleaner, but there is still a large amount of pus welling out at each dressing. The swelling now extends well down into the neck and upwards on to the side of head, and an abscess is forming over left temple. The left eyelids are very much swollen, and the left eye closed. The right eyelids are slightly swollen. Although I had no proof as yet of the presence of the actinomyces, I had quite made up my mind as to the diagnosis of actinomycosis, and the formation of the abscess seemed a favourable opportunity for further investigation. I therefore asked Dr. Workman, our bacteriologist, to come up with a sterilised vessel, and get some of the pus direct from the abscess, as well as some of the granulation tissue. He did so, and though in the granulation tissue he could find nothing, he obtained proof of the presence of the actinomyces in the pus.

During the months of January and February the diseased tissues were thoroughly scraped away about once a week, and the parts swabbed with tincture of iodine.

On 7th February the half-grain doses of iodine were replaced by 15-grain doses of iodide of potassium, and after a few days 30-grain doses were given thrice daily. No improvement followed, the temperature at night rose to 101·4° F., and there were increasing pain and difficulty in swallowing and breathing. These symptoms prevented sleep, and therefore small doses of morphia had to be given. This rendered the patient comfortable, and the breathing became fairly easy.

On 4th March it was noted that considerable depression had set in, and that the general condition had became much worse during the last three days. The iodide of potassium was stopped, and attention given merely to soothing pain and relieving distress. From this date the patient gradually sank, and died on 12th March, 1895, from exhaustion, nine and a half months after the commencement of her illness.

A *post-mortem* examination was made by Dr. Steven, and the tissues have been microscopically examined by Dr. Workman.

It will be seen now, in looking back over the history of this case, that it is a very typical one when compared with published records. The situation of the disease is seen to be the most common, and the nature of the growth and its mode of extension to be characteristic. The only point that would appear to be exceptional and rare is, according to Dr. Colcott Fox, the implication of the skin. Dr. Fox (*Medical Annual*, 1893) says of act. cutis:—"Though a considerable number of cases have been seen at certain centres, such as Vienna, this disease but rarely attacks the skin of man in Great Britain. The skin may be attacked primarily, or in conjunction with deeper seated parts. The region of the face and jaw is the most frequent site affected in Europe, often through the channel of a carious tooth. The clinical appearances are not very characteristic. There is a chronic granulomatous infiltration of the skin, forming a reddened and usually nodulated patch. In man, pus formation tends to occur with the discharge of the characteristic bodies." In my case no pus was formed till after scraping had been done, and at a much later period an abscess formed in the temple. I therefore failed to see any of the granulation bodies described as pathognomonic. I believe the skin here was only involved secondarily to the deeper parts, and that the point of infection was in the inside of the cheek. The changes that took place in the skin after repeated scrapings were interesting, the red colour, for the most part, disappeared, and the skin became yellowish and leathery. The cavities and openings made by the spoon healed, and the surface became very irregular and tuberculated. This is well seen in the last photograph. This change was obviously of the nature of a healing process, and I was hopeful up to near the end that the tendency to spread deeper in the neck would be checked by the extension of this process. All observers are agreed that scraping or excision is one of the most efficient means of treating this disease, and it has, in several cases, effected a cure by itself. The best method of treating the disease would seem to be the iodine method, introduced by Thomassen, of Amsterdam, for cattle, and since applied by many surgeons to the human subject. By this method large doses of iodide of potassium are given internally, and iodine is applied externally to the affected mass. Several cures have thus been effected without the use of the knife or spoon. Most surgeons are, however, agreed that a combination of the iodine treatment and the use of the spoon is best. Other methods of treatment, such as the hypodermic injection of carbolic acid (5 per cent solution) round the mass, have also been reported as successful. It has even been stated by Schlange (*Medical Anuual,* 1894) that the disease tends to spontaneous cure where the fungus can readily reach the outer skin and be thrown off as a foreign body or sequestrum, as in the neck and on the cheek; and he thinks it sufficient in these cases to make a simple incision and scrape the softened points for the disease quickly to disappear. If the disease has attacked the deeper parts, the denudation of the diseased region may require to be extensive, and the operation necessarily of a very grave character. In the case now brought before you, the scraping was most thorough and many times repeated without avail, so that it does not support the views of Schlange.

The following *post-mortem* notes of the case were made by Dr. John Lindsay Steven on 5th March, 1895:—

Summary.—Actinomycosis hominis. Fatty liver. Obesity. Weight of organs: Heart, 10¾ oz.; right lung, 15½ oz., left, 13 oz.; liver, 74 oz.; spleen, 7½ oz.; right kidney, 4½ oz., left, 4 oz.

Great swelling of whole left side of face, involving particularly the left angle of the lower jaw, and extending from this to the temporal region, and down towards the neck. The whole of the swollen surface is covered with what look like cicatrices, in the centres of which are perfectly circular openings of sinuses. In round numbers, there are about twenty of these openings altogether, and the skin around them has a slatey blue or grey colour. One of the largest of the openings (having the appearance of being derived from an incised wound) is over the left temple.

On the right side of the chin there are a few plugged sebaceous follicles with black centres, otherwise the body is that of a well-developed, stout, youngish woman. Rigor mortis passing off, pupils equal and dilated. The *post-mortem* is restricted so as not to allow injury of the face, and the thorax only is to be opened.

The disease of the face and neck is examined by an incision carried from the front of the ear along the curve of the lower jaw, and from this a vertical incision down the left side of the neck is made. By this means flaps are turned back, and the nature of the tissue is seen. The whole of the subcutaneous tissue is much thickened, and of fibrous consistence. This hypertrophied tissue is beset with little caseous abscesses and areas of solid caseous tissue. It is from little abscesses of this kind that the numerous subcutaneous sinuses already noted have originated. The angle of the jaw is removed; in the substance of the angle there is a round opaque area, but there is no expansion of the bone. The back of the tongue, pharynx, trachea, and larynx, with the exception of hyperæmia, present nothing abnormal. The diseased tissue surrounds the great vessels of the neck, but does not seem to have altered their structure in any way. On looking into the mouth, the inside of the cheek looks ulcerated, but the point of the tongue is not altered.

The body is sufficiently opened to allow of the examination of the thorax. The heart presents quite healthy appearances, and no thrombi or valvular disease is noted in any part. The lungs are quite non-adherent, except for one point on the posterior surface of the left at juncture of upper and lower lobe; this adhesion is old. The bronchial mucous membrane is not altered; some of the finer tubes contain a small quantity of pus. The branches of the pulmonary artery, particularly in the right lung, are plugged with white granular, but not very adherent, thrombi. No alteration of any kind from the normal in the texture of the lungs is observed at any point. Gullet, trachea, and thoracic aorta normal. The mediastinal glands are not enlarged.

Liver enlarged and highly fatty. Mesentery and omentum loaded with pure white fat. The kidneys and pancreas are healthy. Mucous membrane of stomach quite normal. The hand is passed into the abdominal cavity and no tumour is felt, and the pelvic organs appear in all respects normal.

Mr. H. E. Maylard referred to a case of actinomycosis of the appendix in which the latter was removed, but without eradicating the disease. The patient was greatly emaciated, and pus continued to escape from the wound. A grain of wheat was found in the appendix.

REVIEWS.

Memorials of the Faculty of Physicians and Surgeons of Glasgow, 1599-1850, with a Sketch of the rise and progress of the Glasgow Medical School, and of the Medical Profession in the West of Scotland. By ALEXANDER DUNCAN, B.A. Lond., Secretary and Librarian of the Faculty. Glasgow: James Maclehose & Sons. 1896.

THE Faculty of Physicians and Surgeons of Glasgow are to be congratulated, not only upon the publication of this valuable history of their corporate existence, but also upon having as their secretary and librarian a gentleman so well qualified as Mr. Duncan, by his wide culture and literary tastes, to undertake the enormous labour of gathering together the scattered and often forgotten events of the Faculty's career. Than the genial and gifted author of this, the latest of Glasgow histories, there is no man more popular with the medical profession of our City. So much is he consulted on all points concerning the literature of medicine, or about historical matters referring not only to the Faculty, but to the healing art in general; so often is he appealed to in questions of medical etiquette or as to the details of the medical curriculum, that we look upon him as one of ourselves, forgetting that he is not actually a member of the profession. And it is really owing to this that a very great part of the value of the present history is due. Although not a medical man, the author, from his thirty years' experience in the Library of the Faculty and in the management of medical examinations, and from his constantly having been brought during that long period into close personal communication with all sorts and conditions of medical men, probably knows more about the various circles and ambitions of professional life than many do who have spent their lives in the practice of medicine. Mr. Duncan seems to think that the fact of not being a medical man is a disadvantage to one in writing a book such as that now under review. We are not inclined to think so. The outsider, with the qualifications and opportunities just mentioned, is more likely to write a true, unbiassed, impartial history than even an initiated member of the profession. With almost all the technical knowledge of the professional man, the author has still been able to preserve the layman's independent and impartial attitude of mind. The result is a history of medicine in Glasgow and the West of Scotland of very great value.

Mr. Duncan has a graceful fluent style, and his literary skill is testified to by the fact that he has been able to give us, not only a readable, but often a most interesting book on a subject (the history of a medical corporation) which to many would seem dry if not actually repellent. The work, however, is not merely a history of the Faculty of Physicians and Surgeons. We have in it an interesting account of the state of medicine in Glasgow before the foundation of the Faculty, of the rise of the Glasgow Medical School, of the origin of the various Medical Societies of the city, and of the older Glasgow contributions to medical literature and journalism. We have interesting and very vivid glimpses of the sanitation of the City in bygone times, of the terror of the citizens when the plague swooped down upon them and the magistrates were driven to their wits' end in their endeavours to stay contagion and care for the sufferers, of the mystification of the town over the nature and origin of the obscure "glengore" (syphilis), and of the social and religious life of the City two hundred years ago. All this makes the book a most interesting one, not only to the medical reader, but also to the cultured citizens of Glasgow, and especially to those of them who take an interest in its archæology. The perusal of such a volume as this gives us quite a new idea of the antiquity of the city of Glasgow. So greatly has Glasgow extended in the last hundred years, and so enormous in the same period has become its commerce and manufactures, that we are apt to forget the antiquity in the contemplation of the rapid modern development. The tall chimneys of St. Rollox vomiting their clouds of black smoke have, during the present century, somewhat dimmed the ancient glory of the Cathedral Kirk of St. Mungo. But to read these *Memorials* is to get quite rid of any impressions of Glasgow being a modern town. Nay, more, although at the end of the sixteenth century Glasgow was, in point of civic status, inferior to several of the Royal burghs around it, it seems, nevertheless, to have been a city of sufficient importance to tempt the eminent surgeon Peter Lowe, trained abroad in courts and camps, to settle in the vigour of his manhood within its bounds, and to use his influence with the King to obtain for it in 1599 a Royal charter founding the corporation now known as the Faculty of Physicians and Surgeons. Although only a bishop's burgh, or burgh of barony, there must have been something about the City which, to the astute eye of Maister Peter Lowe, "presaged" its future greatness as the metropolis of the West of Scotland. We cannot here give even a sketch of the long history of the Faculty, so minutely and interestingly told by the author in these *Memorials.* For the story of their adoption of the barbers as "a pendecle" of surgery, of the difficulties of the Faculty in their relation to the charter and the letter of guildry (seal of cause), of the burning of the minute book (1682-1733), of the letters of horning and methods of suppressing illegal practice, of the famous lawsuit with the University of Glasgow, and many other matters, we must refer our readers to Mr. Duncan's pages.

By no means the least laborious part of the author's work has been the compilation of the Faculty's roll of members—Fellows as they are now called—from its foundation down to 1850. In this roll are to be found the names of many who, in their day, were well known in the world of science or literature, and to the medical archæologist or historian this roll of members will be of the greatest value.

On the whole, the history of the Faculty is a dignified and an honourable history. If, as has been remarked by a contemporary, the members quarrelled a great deal among themselves, they seem also to have been imbued with a high ideal of the medico-chirurgical art, and to have been inspired with a laudable desire to improve the curriculum and standard of examination required from those desirous of entering the profession. We are glad to have the fruit of Mr. Duncan's erudition and patient research embodied in this admirable book.

Deaf-Mutism: A Clinical and Pathological Study. By JAMES KERR LOVE, M.D. *With Chapters on the Education and Training of Deaf Mutes,* by W. H. ADDISON, A.C.P. Glasgow: James Maclehose & Sons. 1896.

THIS work is somewhat ambitious in its scope and aims, and the authors may, now that it is published, congratulate themselves on the results of their labours. It must be admitted that something of the kind was required by British readers. No doubt we have Hartmann's important monograph, translated by the late Dr. J. P. Cassells, of Glasgow, but as this appeared in 1881, it is now getting out of date. The same objection does not, of course, apply to Holger Mygind's admirable treatise (1894); but though this author had the courage to publish an English edition in London, his teaching is based on experience gained in Copenhagen, whilst his statistics are derived in great measure from Danish sources. It remains true, therefore, that an indigenous work on deaf-mutism has, till now, been awanting in Britain, and those who take a true interest in the reputation of Glasgow as a medical centre will be gratified to find that the task of remedying this defect has fallen to such able hands.

The first eight chapters of the present volume are by Dr. Love; the remaining six by Mr. Addison. So far as statistics are concerned, the work may be considered to be fairly representative of Britain, and the authors express their indebtedness to teachers of the deaf throughout the country, not only for statistics furnished, but also for expressions of opinion on points referred to in a circular addressed to them.

Chapter I describes the general characteristics of the deaf-mute, and discusses the question as to the existence of physical and mental peculiarities, in addition to deaf-mutism, in such individuals. It is shown that physically the deaf-mute is not inferior to his hearing brother, and that, where the mental capacity is inferior, this is likely to be owing to the same cause as accounts for the (early acquired) deafness — *e. g.*, meningitis. At the same time, the great difficulty of educating the deaf-mute, as compared with the hearing child, to the full extent of his mental capacity is recognised and admitted.

Chapter II treats of the ear and hearing; Chapter III, of the hearing power of deaf-mutes; Chapter IV, of congenital deafness; and Chapter V, of acquired deafness. Some very interesting family trees are given to illustrate the inheritance of "surdism," or that degree of deafness which involves mutism. Dr. Love adduces some evidence for the belief that consanguineous marriages promote deaf-mutism. Thus, several principals of British institutions stated that "in their opinion consanguineous marriage produces more congenital deafness than the intermarriage of the congenitally deaf." Fortunately deaf-mutes do not increase in this country in the same proportion as the general population, one undoubted reason being that deaf-mutes are relatively sterile.

Acquired deafness which leads to dumbness is due, in about a fourth of all cases, to intracranial disease. Nearly as many cases are due to scarlet fever, and two other fevers which may induce the same condition are measles and typhoid.

Authorities differ greatly as to the relative frequency of congenital and acquired deafness. Dr. Love thinks that, in the West of Scotland during the latter half of this century, the two causes have been of nearly equal potency. The tendency, however, has been for the acquired cases to become relatively more numerous.

Chapter VI describes the morbid anatomy of deaf-mutism.

Dr. Love concludes that acquired deaf-mutism is generally due to disease of the internal ear, the mischief having extended in most cases from the middle ear, but sometimes from the side of the brain, whilst in rare cases it originates in the labyrinth. The changes in congenital deafness are not essentially different, except that in some instances (fewer, however, than used to be supposed) there is malformation or arrest of development.

Chapter VII deals with the diagnosis, prognosis, and treatment of deaf-mutism. Chapter VIII gives census returns. Chapter IX is a history of the education of deaf-mutes. Chapter X tells us what are the characteristics of the uneducated deaf-mute. Thus, they have no notion of God, though a few attain a certain perception of the difference between right and wrong. Chapter XI touches on the different systems of education—the oral or German method, the sign and manual system, and the combined system. There is great divergence of authorities as to which method is best. The pure oral is doubtless the ideally perfect system, but it would appear that for the majority of cases a combined method is desirable; while the sign and manual method seems to be most agreeable to the deaf-mute himself, involving as it does less intellectual effort. The next two chapters touch on the results, and the present state of education. The last chapter takes up some miscellaneous items, such as the deaf and blind, the employments of adult deaf-mutes, and the legal status of the deaf-mute.

As we have already indicated, this volume is one that does credit to its authors, and it deserves to rank high among recent additions to our medical literature.

An Address on the Use of Drugs. Delivered before the Harlesden Medical Society, on 11th October, 1895. By W. R. GOWERS, M.D. Lond., F.R.S. Reprinted from the *Lancet*, 23rd November, 1895.

THIS address is, we may hope, fairly representative of a healthy reaction in the minds of medical men against the tendency, which was so fashionable a few years ago, to decry, or at least to despise, drugs all round. Dr. Gowers here mentions, as one result of his early apprenticeship to a country practitioner, his firm impression that even the routine mixture and the routine pill do not only a definite, but a great amount of good.

Dr. Gowers contrasts two tubes, each of which contains half a teaspoonful of a white powder—in the one case quinine, in the other aconitia. The former is practically harmless; the latter is sufficient to kill a thousand men. This striking contrast furnishes the text for a discussion on the mode of action of poisons, of foods, and of those intermediate bodies which we term drugs.

Not the least valuable portion of this address is the consideration of the modern tendency of scientific therapeutics to disparage that which is empirical, and to honour that which is called rational in treatment. Dr. Gowers says that this is owing to "empirical" being (wrongly) conceived to mean "irrational," instead of simply "not-rational." The expression "rational therapeutics" is applied to "treatment in which a drug is given with success in accordance with preconceived ideas, or with a theory. The theory may turn out quite wrong, although the result is the same. What, then, becomes of the rationality? In empirical therapeutics, a drug is given because it is found by experience that in the particular condition it does good. Often we cannot even guess why. But the fact remains, and surely to act upon observed experience is as truly a rational proceeding as is action upon a theory which may be incorrect."

It is very remarkable how far back the use of our most valued drugs takes us. Rooms were disinfected with burning sulphur before the time of Homer. "We purge sometimes with rhubarb, especially when some subsequent astringent influence is desirable, and so did the old Arabian for the same special reason. The value of castor oil in its chief use was familiar, probably for ages, to the natives of the East and of the West Indies before it was made known in Europe by a physician from Antigua 150 years ago." Aloes was used in the same way long before the time of Dioscorides and Pliny. German peasants taught us the value of ergot in parturition. The old Greeks and Romans used male-fern for tapeworm. The employment of mercury in syphilis by inunction and fumigation dates back to the Crusades. Podophyllum as a purgative is due to the North American Indians.

Even in the case of modern remedies we are indebted, almost throughout, to empiricism. The local anæsthesia produced by cocaine was discovered by accident. The principal use of antipyrin was not anticipated when the drug was tried. "That which is perhaps the greatest practical discovery of modern times in the influence of drugs on disease—the use of bromides in epilepsy—was the result of a chance observation of its use on an allied state, also empirical."

Dr. Gowers states that the agents he has himself introduced to our therapeutic list are due to pure empircism. He instances borax, which he recommended sixteen years ago for severe cases of epilepsy which do not yield to bromide, and chloride of aluminium, which he finds of great service in alleviating the pains of locomotor ataxy.

Dr. Gowers' address is well worthy of careful study.

Transactions of the Obstetrical Society of London. Vol. XXXVII, Part IV. London, 1896.

Of the papers in this, the fourth part of the last volume (1895) of the London Obstetrical Society's transactions, two are of special interest—the one on "Variations in the Height of the Fundus Uteri during the Puerperium," by Drs. Griffith and Steven; the other on "A Case of Uterus Didelphys," by Dr. Giles. In the former paper, the advisability of keeping what is termed "an involution chart" is emphasised, and a simple method of recording the progress of involution on the ordinary temperature chart explained. In the paper on "Uterus Didelphys," Dr. Giles has gone into the literature of the subject most carefully, and has given a summary of each of the reported cases of that particular deformity. Of less importance are the three papers on "Tubal Pregnancy," a paper on "Double Pyosalpinx," and a short paper by Dr. Drummond Robinson on "Certain Micro-Organisms of Obstetrical and Gynæcological Interest."

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

By WALTER K. HUNTER, M.B., B.Sc.

Should Phthisis Pulmonalis be Treated in the Wards of a General Hospital?—At a meeting of the Academy of Medicine (28th January, 1896) Professor Jaccoud raised this question, and he related the histories of three cases of pneumonia treated in his wards, each untimately dying of phthisis. In each of the three cases the pneumonia was the result of an injury. Each made a good recovery. They were all in robust health previous to their accidents, and none of them showed any predisposition, either hereditary or otherwise, to tuberculous disease of any kind. The sputum of each was examined frequently during the course of the pneumonia, and on no occasion was the tubercular bacillus found, although sought for carefully.

Shortly after recovering from the pneumonia each of the three cases showed signs of phthisis pulmonalis, and each died from that disease. The *post-mortem* examinations showed no sign of old-standing tuberculous deposit, and nothing to suggest that the disease was not quite recent.

The question Jaccoud asks is this—Was the tubercular bacillus lying dormant in the tissues of the patient during health, the pneumonia producing a condition favourable for its development; or was the patient infected by organisms coming from phthisical patients in the same ward? Jaccoud thinks this question cannot be settled. He says that the hospital origin of phthisis cannot be affirmed, and therefore should not be affirmed. He is convinced that the phthisical patients suffer to a considerable extent from the presence of pneumococci, staphylococci, streptococci, and other organisms in the wards, and he concludes that the most important element to be considered is the hygienic condition of the wards, especially with regard to the suppression of dust, which contains so many organisms of all kinds. Jaccoud maintains that the safety of patients against infection from phthisical subjects in the same ward can be assured by proper hygienic regulations.—(*Bull. de l'Acad. de Méd.*, 11th February, 1896.)

Involvement of Spinal Cord in a Case of Landry's Paralysis.—Dr. Ballet and Dr. Dutil reported an observation of this kind at the Société Médicale des Hôpitaux (13th December, 1895). The patient showed signs of polyneuritis, muscular atrophy, and sensory affections, especially numbness of the lower extremities. *Post-mortem* there were found changes in the peripheral nerves, in the anterior nerve roots, and also in the spinal cord.

In the spinal cord the cell-protoplasm was swollen and without prolongations, and the nuclei displaced and crenated. Nissl's method of staining shows the changes in the protoplasm, and hæmatoxylin and eosine the altered nuclei. The old staining with picrocarmine is of no use here.

The authors cannot say if the changes in the spinal cord are primary, or if they are secondary to disease of the peripheral nerves.—(*La France Médicale*, 20th December, 1895.)

Infantile Syphilis.—The following are the main points Dr. Boulengier treats of in his paper:—The term "infantile syphilis" is applied to syphilis as met with in children. It may be "congenital," *i.e.*, contracted before birth, or it may be "acquired," or contracted after birth. The term "hereditary" should only be used to designate the element given to the child by means of the male or female pronuclei. The hereditary element in syphilis is just a constitutional tendency which parents transmit to their offspring, *i.e.*, parents with constitutions undermined by syphilis transmit this undermined constitution, and so they have children which are debilitated, rachitic, tuberculous, mentally weak. The author does not believe that a father can give syphilis to his offspring otherwise than by first infecting the mother. Experiments are quoted to show that the male pronuclei (spermatozoa) could not be the means of carrying the infecting virus, for the organism would either kill the cell or the cell the organism. Therefore, what is called "syphilis by conception" would seem an impossibility arguing from the analogies drawn from comparative embryology.

It is well known that a mother, seemingly free from syphilis, may give birth to a syphilitic child. But the mother is never affected by suckling the child even if its mouth is covered with "mucous patches." This must mean an immunity due to having, or to having had, syphilis.

As to the apparent escape of the mother when her infant is syphilitic, the author suggests that, as one organ may be affected by syphilis while others go free, so the syphilis in the mother may show itself only in the placenta and fœtus, leaving the rest of her body free.

As to the female pronucleus, no one can prove that syphilis was transmitted to the child by that means. It is much more likely to be transmitted later on through the placenta. The placenta, it has been shown, acts like a filter, and no organisms can pass through it. When the child gets diseased in the uterus, there must be some syphilitic lesion in the placenta destroying its filter properties, and so allowing the virus to enter the circulation of the fœtus.

A mother contracting syphilis about the seventh month of pregnancy usually bears a healthy child, because in two months there is not time to have a lesion of the placenta such as would destroy its filter properties.—(*Gazette Méd. de Paris*, 1895, Nos. 50, 51, and 52.)

Infective Myelitis.—Oettinger reports a case in which streptococci were found in the spinal cord. The patient was a man who was suffering from a mild form of small-pox. On the fourth day, after the fever had subsided, he was seized with paralysis of the lower limbs, and then of the upper limbs, and still later with embarrassment of respiration. Death took place in three days. The cord was found to be softened, especially in the region of the fissures. the anterior cornua, and the central canal. The vessels were inflamed, and embryonic cells were present around them. Streptococci were discovered in great numbers within the vessels, and at their periphery; sometimes they were contained within phagocytes. Similar lesions existed in the region of the ependyma, and organisms were seen inside the canal. The cells of the anterior horns were broken up, and their processes ruptured, a fact which accounted for the early paralysis.

M. Widal attributes the myelitis produced in the course of his experiments to the soluble products of streptococci, but the writer's case seems to show that the inflammation is due more immediately to the microbes themselves. Curschmann and Baumgarten have found organisms in the spinal cord in cases of paralysis after other infectious diseases.—(*La France Médicale*, 1st February, 1895).—T. K. M.

DISEASES OF THE EAR.

By Dr. WALKER DOWNIE.

The Degenerate Ear. By Eugene S. Talbot, M.D., Chicago.—This is an elaborate statistical paper dealing with deformities of the auricle as met with in criminals and the insane. It is illustrated by numerous reproductions of photographs.

A careful study of his statistics, however, shows that the ear is not in harmony in its relation to its various parts, and that so-called normal individuals have ears as much deformed as criminals and the insane. The percentage of deformities in criminals and in the insane is nearly the same, and taken together is about one-half as great as the normal.

It is often said that the individual whose lobule is attached throughout its length has insane tendencies. But this is not only not corroborated by Dr. Talbot's investigations, but attached lobule was found to be much more common amongst the normal than among the insane.

There were more deformities found in the right than in left ear, and the right ear is on a higher level than the left ear in a considerable percentage of criminals and a small percentage of insane.

Dr. Talbot considers that the external ear as an organ is tending to disappear, as is shown by the feeble power of its muscles, which, except in cases of reversion or special training, are inactive.

Changes in the ear by themselves are merely suggestive and not demonstrative of degeneracy, except in accordance with the general rule that accumulation of defect constitutes strong evidence.—(*Journal of the American Medical Association*, 11th and 18th January, 1886.)

Foreign Bodies in the External Auditory Meatus. By Wm. Milligan, M.D.—Although there is nothing new in this communication, the lessons it contains are ever necessary. The unfortunate results which at times follow attempts to remove foreign bodies from the ear are of frequent occurrence. In dealing with cases of foreign bodies, there are three cardinal maxims:—

1. *Be sure that a foreign body really exists in the meatus.*—A foreign body may have been introduced, but in the interval between its introduction and the examination of the ear it may have dropped out, leaving, it may be, the sensation of its being retained. In this connection, a case is related where a man, while running molten metal into sand troughs, received some of the metal in his meatus. He was taken to hospital, where, without any examination of his meatus, an attempt was made to extract the metal. Probes and forceps were used, and ultimately the malleus was removed along with portion of the tympanic membrane. There had been no foreign body present on his admission to hospital.

2. *If a foreign body is present, make a careful attempt to remove it with the syringe.*—This cannot be sufficiently strongly emphasised. Dr. Milligan does not lay sufficient stress on this maxim. If the use of the syringe be insisted upon, men in practice will find that they very rarely require to resort to the use of any other instrument for the removal of a foreign body.

3. *If instruments have to be resorted to, be careful that the work is done under proper illumination, and with the utmost gentleness.*—The syringe as well as other instruments should always be used with the help of a bright light, and under the guidance of the eye.

If these points were considered and acted upon in the treatment of what is, and should be, a simple matter, fewer complications would follow attempts at removal of foreign bodies from the auditory meatus.—(*The Medical Chronicle*, March, 1896.)

The Surgical Treatment of Aural Polypi. By P. B. Wing, M.D., Washington.—The author here formulates the practice followed by the majority of aurists in the treatment of mucous polypi, and his paper may be summarised thus:—

The presence of a polypus is always associated with discharge more or less profuse, and usually fœtid. Thorough cleansing of the meatus is the first step, after which the point of origin of the polyp should be made out as accurately as possible. This in the case of a small polypus is readily done; but the site of larger ones, more or less completely filling the meatus, can only be approximately determined, and this by the use of a probe.

For the removal of the growth a snare is employed, the wire of which encircles the pedicle as near its origin as possible. The wire is then tightened, and when the loop holds the pedicle firmly the growth is either jerked away or twisted by giving the snare a few turns. Bleeding may be controlled by hot water or by packing the meatus with absorbent cotton-wool, and on the following day the stump is treated by the application of chromic acid fused on the end of a silver probe. Chromic acid is repeated as required, and its use is followed by the application of iodoform and boracic, or hydrastis and boracic acid, with the occasional syringing with a 1 to 2,000 solution of bichloride of mercury.—(*Journal of the American Medical Association*, 8th January, 1896.)

The Archives of Otology for the first quarter of the year contains the following original papers:—

1. "A Case of Carotid Artery Hæmorrhage with Middle-ear Necrosis; Operations." By Robert Abbe, M.D.
2. "Purulent Otitis Media; Abscess in the Cerebellum; Death; Autopsy." By J. H. Woodward, M.D., Burlington, Vermont.
3. "On the Disturbances of Equilibrium in Diseases of the Ear." By Dr. Stanislaus von Stein of St. Petersburg. Translated in abridged form by Dr. J. A. Spalding, Portland, Maine.

4. "A Case of Acquired Total Deafness, the result of Inherited Syphilis; with *Post-mortem.*" By Walker Downie, M.B., F.F.P. and S. G.

5. "The Upper Tone Limit in the Normal and Diseased Ear, as determined by the Galton Whistle." By H. A. Alderton of Brooklyn, N.Y.

6. "The Treatment of Polypi and Granulations." By Urban Pritchard.

7. "A Case of Living Larvæ in the Ear without Previous Suppuration." By William C. Braislin, M.D.

8. "A Case of Papilloma of the Tonsil; Removal." By John B. Roberts, M.D.

9. "Further Observations on the Indications for Mastoid Operations in Purulent Otitis Media and its Complications." By H. Knapp.

10. "A further Case of Anchylosis of the Stapes Diagnosticated in Life, with Autopsy and Manometric and Histological Examinations. By Prof. F. Bezold, Munich.

Books, Pamphlets, &c., Received.

Public Health Laboratory Work, by Henry R. Kenwood, M.B. Second edition, with Illustrations. London: H. K. Lewis. 1896. (10s. 6d.)

Current from the Main: the Medical Employment of Electric Lighting Currents, by W. S. Hedley, M.D. With Illustrations. London: H. K. Lewis. 1896. (2s. 6d.)

Diagnosis and Treatment of Diseases of the Rectum, Anus, and Contiguous Textures, by S. G. Gant, M.D. Two Chapters on Cancer and Colotomy, by H. W. Allingham, F.R.C.S. Sixteen Chromolithographs and 115 Woodcuts. Philadelphia: The F. A. Davis Co. 1896. (3½ dols. net.)

Memorials of the Faculty of Physicians and Surgeons of Glasgow, 1599-1850; with a Sketch of the Rise and Progress of the Glasgow Medical School, and of the Medical Profession in the West of Scotland, by Alexander Duncan, B.A. Lond., Secretary and Librarian of the Faculty. Glasgow: James Maclehose & Sons. 1896. (10s. 6d. net.)

Transactions of the Obstetrical Society of London. Vol. XXXVII, Part IV. Edited by William Duncan, M.D., and Percy Boulton, M.D. London, 1896. (10s.)

King's College Hospital Reports. Edited by N. Tirard, M.D.; W. Watson Cheyne, F.R.S.; John Philips, M.D.; and W. D. Halliburton, M.D. Vol. II. London: Adlard & Son. 1896.

The New Photography: Results of Experiments at University College, Nottingham. Photographed by A. H. Simpson. Nottingham: The Electric Photo-Printing Co.

Transactions of the Royal Academy of Medicine in Ireland. Vol. XIII. Edited by William Thomson, M.A., F.R.C.S. Dublin: Fannin & Co. 1895.

Transactions of the American Surgical Association. Vol. XIII. Edited by De Forest Willard, M.D. Philadelphia: William J. Dornan. 1895.

GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR THE FOUR WEEKS ENDING 18TH APRIL, 1896.

	WEEK ENDING			
	28th March.	4th April.	11th April.	18th April.
Mean temperature, . .	44·6°	45·7°	50·0°	44·8°
Mean range of temperature between day and night, .	12·8	15·3	9·2	15·6
Number of days on which rain fell, ...	5	3	4	5
Amount of rainfall, . .	0·55 in.	0·04 in.	0·88 in.	0·67 in.
Deaths registered, . . .	282	274	291	270
Death-rates, ...	20·8	20·2	21·5	19·9
Zymotic death-rates, . .	2·7	2·7	3·5	2·0
Pulmonary death-rates, .	6·3	5·0	6·1	5·5
DEATHS—				
Under 1 year, . . .	56	56	66	62
60 years and upwards, .	53	63	54	48
DEATHS FROM—				
Small-pox, ...	...	...	...	...
Measles, ...	6	4	9	7
Scarlet fever, . . .	6	2	2	2
Diphtheria, . . .	...	2	3	1
Whooping-cough, . .	13	13	18	10
Fever, ...	2	5	7	3
Diarrhœa, ...	8	11	8	4
Croup and laryngitis, .	...	1	2	...
Bronchitis, pneumonia, and pleurisy, . . .	60	42	63	50
CASES REPORTED—				
Small-pox, ...	...	...	...	...
Diphtheria and membranous croup, ...	8	4	11	8
Erysipelas, . . .	20	19	22	17
Scarlet fever, . . .	50	45	65	45
Typhus fever, . . .	2	...	...	...
Enteric fever, . . .	12	11	14	9
Continued fever, . .	...	...	...	...
Puerperal fever, . .	...	3	3	2
Measles, ...	101	67	99	157

SANITARY DEPARTMENT,
GLASGOW, *24th April, 1896.*

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ORIGINAL ARTICLES.

INTESTINAL PERFORATION IN ENTERIC FEVER.[1]

By JAMES W. ALLAN, M.B.,
One of the Physicians to the Dispensary, Glasgow Royal Infirmary.

Gentlemen,—When you have under your care a case of enteric fever—in the advanced stages of the disease—and you are informed that the patient has been seized with pain in the belly and vomiting, your heart sinks within you, for you know that in all probability perforation of the bowel has occurred, and you know further that this almost invariably proves fatal.

In the gloom there are two feeble rays of hope. In the first place, it may not after all be intestinal perforation; and, in the second place, even if it is, cases have been known to recover.

Among occurrences which might be mistaken for intestinal perforation, may be mentioned the development of a localised peritonitis connected with an ulcerated Peyer's patch *without* perforation, the passage of a gall-stone, and the onset of an abortion. In clinical experience, I think it is in distinguishing the first of these (localised peritonitis connected with a Peyer's patch *without* perforation) that the real difficulty centres. Such cases, even under the most careful observation, may leave one in doubt. The symptoms very closely resemble those of a case in which a minute perforation has occurred, and in which there has been little or no escape of the intestinal contents into the peritoneal cavity. Therefore, when the symptoms are not very urgent, and the pulse is of tolerable quality, and the patient does not look *collapsed,* and especially when he has survived for some days, we may hope that after all the case is one of peritonitis without perforation. No doubt this also is a sufficiently alarming, a sufficiently dangerous, complication, but we do not despair so much of the patient's recovery. His chances are better.

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[1] Read before the Glasgow Southern Medical Society, 20th February, 1896.

The escape of the contents of a softened mesenteric gland into the peritoneal cavity would give rise to symptoms similar to those of intestinal perforation, so similar as to render a differential diagnosis practically impossible.

But let us suppose that our patient has intestinal perforation. What are the symptoms presented by a well-marked case? In the first place, there is sudden and severe abdominal pain, so sudden as to come as a shock to the patient and an alarm to the nurse, and so severe as to make the sufferer writhe with agony. The pain is evidently of an excruciating and unbearable character. (It is important to note that in some cases pain may be absent.) Vomiting is a common symptom. Sometimes there is not actual vomiting, but a troublesome retching. In other instances, the patient seems subject to eructations: there is a more or less continuous coming up and swallowing of fluid.

In intestinal hæmorrhage we have a fall in the temperature, in intestinal perforation we have a rise in temperature; but in the latter the rise may be preceded by a fall in the period of shock.

The pulse is profoundly affected. In a severe case it is very small, quick, and weak. The wretched character of the pulse is very remarkable.

The appearance of the patient's face indicates extreme suffering and shock. There is pallor, a dark sunken look about the eyes, a pinched expression about the features, and in the eyes a look of terror and of suffering which is very painful to behold. Peritonitis, frequently accompanied by marked tympanitis, supervenes, and, of course, there is extreme abdominal tenderness.

Such are the salient features in a case of intestinal perforation. (Of course the urgency of the symptoms may largely depend on whether we have to deal with a pin-hole perforating ulcer; the tearing of a bit of bowel reduced to the peritoneal coat; or the separation of a necrosed portion of bowel, the two latter being more likely to give rise to sudden and severe suffering than the first.) The diagnosis, as a rule, is sufficiently plain. Treatment in such a case should be prompt. One indication is the relief of the patient's suffering; another is the repair of the damage done—the cure of the patient. Fortunately the means to be employed for the first is that best calculated to promote the second. We wish to relieve the pain, and, if possible, procure sleep. We also wish to keep the intestine as nearly as possible perfectly at rest, in order that nature may have an opportunity to repair damages. For if circumstances are favourable, adhesions may be formed between the perforated portion of bowel and some neighbouring part. Lymph is thrown out, attachments are formed, and so the opening is occluded. All our efforts are directed to the assistance of nature in bringing about this desirable result. We try, therefore, to keep the patient as still as possible, and we try to bring the bowel to rest.

There is one blessed drug which, to a large extent, meets these requirements. I need scarcely say that I mean opium.[1] By its means we relieve the patient's pain, we may procure sleep and so keep him quiet, and at the same time we reduce the intestinal movements to a minimum. I think the mode of administering the drug is of some importance. Give it in the form of one grain gum opium pills, simply little pellets of pure gum opium freshly made. Let the patient have one of these every hour, or every two hours, till the pain is made bearable, and thereafter regulate the interval of the dose by the requirements of the case, keeping a close watch over the pupils. The tolerance of the drug in these cases is sometimes very remarkable. The relief of the pain is in itself a very great matter, and it tends to cure by allowing the patient to become calm and still. The application to the abdomen of linseed poultices, having the surface well moistened with laudanum, is also an excellent means of relieving the patient. The effect of this application is in many cases very gratifying. Let the poultice be made thin and light, soak the face of it well with laudanum, and apply as hot as possible. For the relief of the vomiting or retching employ ice, to be swallowed in chips, or allowed to melt in the mouth. Small quantities of iced champagne may also be given, or sips of iced soda water, perhaps with a little brandy added. If the thirst is very great, a wine-glassful of iced water may be given from time to time, but large draughts of water or other fluids are out of the question.

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[1] Very early in my professional life—indeed, I believe it was in my student days—I had my mind deeply impressed with the value of opium in keeping the bowel quiet, by having Brinton's little book on *Intestinal Intussusception* placed in my hands by my dear and lamented friend the late Dr. Peter Stewart.

As regards nourishment, the object is to give it in such forms as will be readily absorbed directly from the stomach, and so avoid as far as possible any disturbance of the bowels. For this purpose whey may be given, either simple or in the form of sherry whey. Cold beef-tea, from which all the fat has been removed, may also be given in teaspoonful doses. Liebig's extract of beef or other similar preparations may be advantageously employed. By these means the patient may receive sufficient nourishment to tide him over the critical period. If milk is given it must be well diluted, and given in small quantities; but, for the first few days at anyrate, I think it is well to keep to the whey and the extract of beef.

The tympanitis is frequently a prominent and distressing symptom, and, unfortunately, does not seem to be much under the control of treatment. Turpentine may be employed on stupes; it may also be given by mouth, or as an injection. The passage of a long tube into the bowel has been recommended for the relief of this condition, but I cannot speak in its favour. Assafœtida injection may be tried, but the administration of enemata is not free from objection. Perhaps the energetic use of turpentine stupes is, on the whole, the best and safest method to employ; but this method has a limit which cannot be overstepped without the fear of incurring troublesome after-effects.

Puncturing the bowel through the abdominal wall has been tried, but I cannot say much in its favour; although, when the distension is very great, and the patient's respiration is interfered with, we may be glad to try almost anything which holds out a prospect of improvement.

In point of fact, this tympanitis seems to be due to a sort of paralysis of the bowel, permitting the canal to become distended with gas which it is powerless to expel. Our efforts at relief do not seem, as a rule, to be very effective.

If we have the great good fortune to see our patient recover, our care and precautions must not be relaxed till he is fully restored to health. It is to be borne in mind that his life hangs on a thread even after adhesions are formed; for these may easily be torn asunder in the early stages. A sudden movement, an imprudent exertion, may in an instant undo all that nature has done. The patient may sit up in bed quickly, and lie down again to die. *Post-mortem* examination reveals the fact that the fatal occurrence is due to the adhesions having been torn asunder. It is clear, therefore, that the patient must be placed under close restrictions as regards bodily movements, and great caution should be employed with regard to his diet till convalescence is very thoroughly established. Even although the pyrexia may have ceased, the pulse become normal, and the tongue clean, it is well to bear in mind that the adhesions on which the patient's life depends may yet be tender; and no precaution is to be neglected which may in any way contribute to lessen the risk of their being ruptured.

He should therefore be kept in the recumbent position, and fed on peptonised milk, thickened soups, and light puddings. Purgatives should be carefully avoided. Olive oil may be given in small quantities from time to time; but, if the bowels require to be moved, mild enemata should be employed for the purpose. Constipation must not be neglected, for nothing is more objectionable than to have any straining at stool. The spasmodic efforts to get rid of small masses of hardened fæces might be attended with the most disastrous results.

If the patient is troubled with tenesmus, it may be relieved by starch and opium injection, or a morphia suppository.

I have referred only to the medical treatment of intestinal perforation. But the question of surgical relief has not only been raised, but put to practical proof. So far as I am aware, the results have not as yet been very encouraging.

No doubt if we have, say, one small perforation to deal with, and the rest of the bowel is in a *comparatively* sound condition, and the case is taken in hand immediately after perforation has occurred, a skilful surgeon may operate with ease, and there will be every reason to hope for a good recovery.

In its present stage of development, surgery would regard this as a comparatively light task. It does much more wonderful things every day.

But if the intestine is extensively ulcerated, and deeply ulcerated, and peritonitis has occurred, it seems to me that a surgical operation is likely to prove a very unsatisfactory proceeding.

It is further to be borne in mind that symptoms very closely resembling these of perforation may occur in connection with a localised peritonitis *without perforation*, and to open the abdominal cavity in such a case would be an unpleasant experience for a surgeon.

Still, gentlemen, a question such as this cannot be decided by theoretical opinions, and surgery now performs such marvels that one almost hesitates to set her limits.

Intestinal perforation, as a rule, occurs in the advanced stages of enteric fever—say in the third or fourth week of the disease; but it should not be forgotten that it may supervene earlier.

Again, especially in a mild case, the disease may be much further advanced than we suspect. Perhaps only one patch, or even a portion of a patch, is ulcerated, and this limited ulceration may go on rapidly to perforation. It is well, therefore, in all cases of enteric fever, however mild they may appear, to keep the patient as quiet as possible, and, even in convalescence, to avoid as far as possible any imprudent exertion or sudden movement.

NOTES OF FIVE CASES OF "ENDOMETRITIS" IN PRIVATE PRACTICE (ILLUSTRATING THE RELATION BETWEEN THE LOCAL DISEASE AND THE CONSTITUTIONAL CONDITION OF THE PATIENTS).[1]

BY JOHN COULSON HOWIE, M.A., M.B., C.M., L.M.,
Dispensary Physician, Glasgow Samaritan Hospital for Women.

I WISH to bring before the Society this evening notes of several cases of endometritis which present some points of interest. These have all occurred in private practice during the past three years.

CASE I.—Mrs. G. C., 25 years of age, was visited by me on 22nd February, 1893. She complained of a constant discharge of blood from the uterus following five consecutive abortions or miscarriages—the last of which occurred in the end of November, 1892.

Menstruation began at 13 years of age, and was regular every month (four days ill; quantity always excessive; no clots; no pain in the back or sides) until twenty-one months after marriage at the age of 18.

[1] Read at a meeeting of the Glasgow Obstetrical and Gynæcological Society, 25th March, 1896.

(1) She had one child, 4½ years old, born at term without instruments. There were no complications connected with the confinement, and she made a good recovery in a week.

(2) About twelve months after the birth of the child, patient had an abortion at three months, brought on by carrying a heavy weight downstairs. She lost a large quantity of blood and clot, and the abortion seems to have been incomplete. Patient did not lie up in bed at this time, but only put on a binder.

(3) Five months after the first abortion, patient had a second abortion about 3½ months. She got up on the second or third day.

(4) Shortly after this time patient had a third miscarriage at four months. She kept her bed for nine days after delivery.

(5) Patient had next a fourth miscarriage at five or six months, preceded by bleeding for a fortnight.

(6) In November, 1892, she had a fifth miscarriage.

For the past five months the patient has had an almost continuous oozing of blood from the uterus, with occasional great gushes and large quantities of clot. The discharge was of a dark brown colour, with foul odour, and sometimes containing purulent matter. The odour was often quite unbearable, and exceedingly offensive.

On 22nd February, 1893, I made a P.V. examination. There was a very foul muco-purulent discharge in the vagina. The os externum was much eroded. The uterus was in its normal anteverted position, but enlarged—the sound passing about 5 in. I made a diagnosis of endometritis and subinvolution following abortions, and decided to curette the uterus. Chloroform was given by Dr. J. Bateman Morton. The patient was put in the lithotomy position, and two neighbours assisted me to support the knees. I first douched out the vagina with weak carbolic solution, and then gave an intra-uterine carbolic douche. The uterus was curetted with a Hegar's curette of medium size without previous dilatation. After an intra-uterine douche, equal parts of tincture of iodine and water were introduced into the uterus by Braun's iodine syringe. A third intra-uterine douche was given, and then iodoform and iodoform gauze were inserted into the vagina. I saw the patient in the afternoon and evening. Her temperature and pulse were normal, and there was no hæmorrhage. After the operation I ordered a mixture of tincture of steel and liquid extract of ergot to be taken in water every four hours.

The patient was visited twice daily on 23rd and 24th

February, and once daily on 25th and 27th February and on 1st March. Her pulse and temperature continued normal, and there was no hæmorrhage whatever from the uterus.

On 1st March I ordered:—

℞.—Aletris cordialis,		1½ oz.
Ferri et ammon. citratis,		1 dr.
Spt. chloroformi,		2 drs.
Liq. hydrarg. perchloridi,		1 oz.
Syrupi aurantii,		4 drs.
Aquæ,	ad.	6 oz.—M.

SIG.—Take a tablespoonful in water thrice daily.

On 3rd March, about half past eight o'clock in the morning, the patient sent for me, on account of slight hæmorrhage from the uterus accompanied by the expulsion of a few clots. In the emergency, a local doctor injected ergotine into the fore-arm before my arrival. At 8·45 A.M. I administered a draught containing liquid extract of ergot and tincture of perchloride of iron with spirits of choroform, and then gave a hot vaginal, followed by a hot intra-uterine weak carbolic douche, and the hæmorrhage entirely stopped. At 11·15 A.M., when I left the patient, the temperature and pulse were normal, and I ordered a mixture of liquid extract of ergot and tincture of steel every three hours. At 6 P.M. the patient continued well. She had no return of the hæmorrhage, and the temperature and pulse were normal. At 10 P.M. she was still well, and there was no more hæmorrhage. The pulse and the temperature continued normal.

On 16th March I made the following note:—I continued to visit the patient daily from 4th to 13th March, and then saw her once on the 16th. During the whole time she had no further hæmorrhage, and no discharge of any kind from the uterus. She gained in strength daily, and the temperature in the mouth never exceeded 99° F. Her general health is much improved. During that period she had been getting mixtures with aletris cordial and iron. She was advised to go to the country for several months for change of air.

28th November, 1893.—Patient continued in very good health until about a week ago, when she caught cold. I called to see her this afternoon, and found her suffering from persistent cough, and tough, viscid, muco-purulent expectoration. There was marked dyspnœa and orthopnœa, sonorous and sibilant râles over the whole chest, but no dulness on percussion. In the mitral area of the heart there were V.S. and V.D. murmurs, and the second pulmonic sound was accentuated. She was also suffering from dyspepsia. I ordered linseed poultices to the chest and back alternately every four hours with an expectorant mixture:—

℞.—Potassii iodidi,	½ dr.
Ammonii carbonatis,	1 dr.
Vini ipecacuanhæ,	1 dr.
Tincturæ scillæ,	2 drs.
Syrupi tolutani,	1 oz.
Aquæ chloroformi, ad.	6 oz.—M.

Sig.—Take a tablespoonful in water every three hours.

℞.—Hydrarg. subchloridi,	4 grs.
Magnes. carb. pond.,	10 grs.
Pulv. rhei,	6 grs.—M.

Sig.—Take as one dose at once in a little milk.

The pulse was of low tension, but the temperature was normal. Patient is now four and a half months pregnant—menstruation having stopped on 7th July, and quickening was noted on 22nd November.

29th November.—Patient slept well; dyspnœa and orthopnœa much less; expectoration white and frothy, less viscid than formerly, and more easily coughed up. Temperature 99° F.; pulse 84, with fair tension. Still a good many sonorous and sibilant râles over both lungs. The palpitation of the heart is much worse during dyspepsia that at other times. Patient had suffered from "dropsy" of the legs and abdomen when a child, and had an attack of scarlet fever later on.

3rd April, 1894.—To-day the patient was delivered of a male child at term. The presentation was first vertex. Neither forceps nor chloroform were required for delivery. The placenta and membranes were expelled entire, and were found to be perfectly healthy. The child was quite vigorous—weighed 8½ lb., and was 20½ in. in length (from the vertex to the sole of the foot).

Remarks.—The interesting point connected with this case is the remarkably good effect which followed the treatment of the endometritis by curetting and the application of iodine to the endometrium, along with improving the general health by the use of tonics, good nourishment, and change of air to the country. When the patient first consulted me she was wasting away to a shadow, while the rapid improvement in her health every week was clearly taken note of by all her friends. Before she came under my care, she had no special treatment of any kind for the endometritis, as far as I could make out, although she had been under treatment for many years for her heart and lungs and for the attacks of kidney mischief. Local treatment and constitutional treatment must *both* be carried out in these cases in order to get a good result. The one is as necessary as the other for success.

. . .

CASE II.—Mrs. J. F., æt. 26, came to see me on 21st August, 1893, complaining of severe pain in the back and sides, almost constantly present, but worse during the menstrual periods, which has lasted for fifteen months; also of dyspareunia. Menstruation began at 12, but was not regular till 18 or 19 years of age, because of poor health. At the periods she was usually nine days ill. The quantity of discharge was excessive, and it used to be blackish or greenish in colour. She had only one child, which was of very large size, born two years ago. Delivery was rapid, no instruments were required, there were no hæmorrhages, and no complications after the confinement. She has never had any miscarriages. Between the menstrual periods she is troubled with profuse leucorrhœal discharge throughout almost the whole interval. The last menstruation ceased a few days ago; the discharge lasted five days, it was greenish in colour and watery, and the flow was accompanied by a good deal of pain in the back most of the period. Micturition is sometimes very frequent, but is not accompanied by scalding. The bowels are constipated, and she requires to use purgative pills.

At the Polyclinic she had been under treatment for some time, and local applications had been made to the endometrium, and vaginal douches and bromide of potassium mixtures ordered.

5th September.—Yesterday patient had a discharge of a small quantity of blood with pus and mucus from the uterus, accompanied by pain in the left groin. On 3rd September, she had severe pain in the back. A hot vaginal douche was given.

On P.V. examination there was a good deal of tenderness over the right ovary and in Douglas's pouch. The cervix was split from side to side, and there was marked erosion of the os externum due to endometritis. The uterus was normal in size and in position, but the sound was not passed. The os externum was painted with tincture of iodine. A glycerine and boracic tampon with laudanum was inserted into the vagina.

12th September.—Pain in the back not so severe as formerly, but still a good deal of tenderness in the right ovarian region and in Douglas's pouch. Sound passed 2½ in. The last menstrual flow came away more easily, and was more natural in colour than the average. I gave a vaginal and intra-uterine weak carbolic douche, and inserted a glycerine and boracic acid vaginal tampon.

19th September.—Pain less severe. Sound passed more easily. Hegar's dilators passed up to No. 6. Tincture of iodine applied to endometrium. Continue bromide of potassium mixture. Vaginal and intra-uterine douche.

26th September.—During the last week the pain has been less severe than for a whole year. Leucorrhœa much less than formerly. She had a little pain during the last two days after washing. I gave a vaginal douche, applied tincture of iodine on a probe, and inserted a glycerine vaginal tampon.

3rd October.—Still tenderness over the right ovary and behind the uterus. Os externum less eroded. Tincture of iodine applied to the endometrium. Glycerine vaginal tampon. Ordered fly blister over the right ovary. Repeat bromide mixture. Ordered compound liquorice powder to be taken every morning.

The patient was under treatment by poppy-head fomentations, vaginal tampons, douches, and blisters to the groins, along with mixtures of bromide of potassium, and the occasional use of cascara sagrada, until the end of October.

11th November.—No menstruation for six weeks; less ovarian pain. Dyspeptic symptoms:—Swelling and pain over stomach; nausea; waterbrash; occipital headaches. Myopic with test-types for twelve months; eyes strained with fine needlework. Ordered a mixture of bismuth, soda, ginger, and gentian.

28th November.—Patient much better; ovarian pain less. Breasts enlarged; probably pregnant. Hot vaginal douche, tampons. Ordered mixture of cascara, nepenthe, and glycerine.

21st March, 1894.—About six months pregnant; quickened early in February. Uterus fully up to level of umbilicus. No tenderness over ovaries. Ordered an aperient confection.

2nd July.—Patient was to-day delivered of a healthy child at term. She made a very good recovery after the confinement.

Remarks.—This patient, as well as the first case, had a very great improvement in her general health as the uterine and ovarian conditions yielded to treatment. In this case, also, the system as a whole was attended to as well as the local manifestations of the disease, and the regulation of the of the diet and administration of tonics was not neglected.

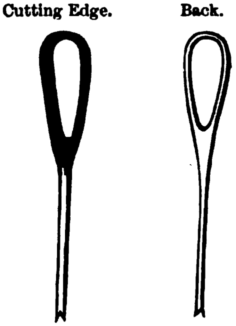
Before treatment began the patient was very thin and emaciated, had lost her appetite almost entirely, felt quite miserable and melancholic, and seemed inclined at times to settle down into a permanent state of melancholia. But there was steady and rapid improvement in the tone of the system as a whole; so much so that she looked to her friends like a different individual.

CASE III.—Mrs. D. Y., æt. 37, was visited by me on 2nd February, 1894. She complained of severe pain in the hypogastrium and left groin, almost constantly present; also of excessive leucorrhœa, great dyspareunia, irregular micturition, dyspepsia, and emaciation—all since the birth of her last child five years ago (January, 1889).

Menstruation began at 14, and was regular every four weeks till her first pregnancy after marriage at 24. At the menstrual periods she was three days ill, the quantity was average, there were no clots, and there was no pain in the back or sides before or during the period. She had a family of five children at full term, and one child at eight months. This latter was at her second confinement, was a footling presentation, and died soon after delivery. At her confinements no instruments were required, and there was no complication following them except after the birth of the last child. She had no miscarriages. The last child, born five years ago, was delivered very rapidly, but the placenta was retained for three and a half hours, and the doctor in attendance forcibly removed it by the hand without chloroform. After the confinement she had several rigors, heats and chills, perspired freely at night, had a great deal of abdominal pain, and a hectic temperature. She suffered from great weakness for months and years afterwards. Since that time she has been in very bad health, has had weakness of mind and body and depression of spirits, and is easily irritated and excited. During that period she has also suffered from flatulence, severe pain over the stomach and swelling after food, nausea, severe frontal and parietal headaches. The bowels are constipated, and defæcation is nearly always painful. She has suffered much from sleeplessness. She suffers from very profuse leucorrhœa with foul odour, and the discharge is sometimes yellow. There is no coloured discharge from the uterus between the menstrual periods. For the past five years she has had almost constant pain in the left groin and hypogastrium.

3rd February (3 P.M.)—On P.V. examination, great tenderness in Douglas's pouch and in the left lateral fornix. Thick leucorrhœal discharge from the uterus. Sound passed 2¾ in.; uterus in normal position; much tenderness in recto-vaginal septum; os externum much eroded. A diagnosis was made of "endometritis and subinvolution." I gave a vaginal, followed by an intra-uterine, carbolic douche, after cleansing thoroughly the external genitals. Tincture of iodine was injected into the uterus by Braun's syringe, and this was followed by an intra-uterine douche. The patient was kept in the lithotomy position by Clover's crutch. I curetted the uterus with the same narrow curette which I had used in Case I. This curette is a modification of Thomas's dull wire curette, with a sharp cutting edge; but all the cutting is done with the sharp horizontal edge. It has the advantage of being so narrow that, in cases of multiparæ where the cervix has been split, it can be easily passed without previous dilatation of the cervix such as is required in using Martin's curette, and it has also a flexible stem which enables it to be so bent as to have the cutting edge applied to the surface of the uterus to be curetted. The uterus has to be systematically scraped from above downwards, and the handle rotated slightly for each new application of the curette. The curette removed a large quantity of unhealthy mucous membrane and some clots. I douched again, then gave an intra-uterine injection of tincture of iodine, followed by an intra-uterine douche. A glycerine and opium tampon was then inserted into the vagina. Although the patient was not under chloroform, she says she did not feel the slightest pain or inconvenience during the whole operation; and, in fact, being in the lithotomy position, she was quite unaware of what had been done to the uterus until I told her afterwards. As I had no assistance, I exposed the cervix by means of Dr. Reid's self-retaining speculum, and drew down the cervix. After the curetting, at 5 p.m. the temperature was 98·6°, and the pulse 84.

End of Curette (*Natural Size*).



4th February.—Patient slept well last night. No pain or tenderness on P.V. examination. The temperature was 98·4°. The tampon was removed and found quite healthy, and blue gauze was inserted into the vagina.

5th February.—Patient took some strong beef-tea yesterday afternoon, and this was followed that evening by some nausea and vomiting and diarrhœa. The gauze removed from the vagina was found to be quite healthy. There was no pain or tenderness on P.V. examination. I gave an intra-uterine carbolic douche, cleared out the rectum with an enema of soft soap, castor oil, and turpentine in hot water, and this had a very soothing effect on the bowels.

6th February.—Patient slept fairly well; abdominal pain nearly gone; absolutely no pain on P.V. examination either in Douglas's pouch or in the left lateral fornix; temperature, 98·6°. I gave a hot water rectal injection to clear out the bowels, which brought great relief to the patient. Ordered bismuth subnitrate and rhubarb powders.

7th February.—Still improving; no pain on P.V. examination; intra-uterine douche; boracic acid insufflation into vagina; rectal injection repeated. The patient was ordered peptonised milk (made by Fairchild's peptonising powders), bovinine, and essence of malt.

10th February.—No pain on P.V. examination; intra-uterine carbolic douche, followed by vaginal boracic insufflation; also gave a rectal enema; repeated curetting operation, with douching and intra-uterine injection of tincture of iodine as on the first occasion. Although the patient was not put under the influence of chloroform, there was not the slightest pain felt during the operation. I continued the peptonised milk, and ordered a purgative confection of senna, sulphur, and jalap, to be taken every morning.

12th February.—No pain on P.V. examination; intra-uterine douche and rectal enema given. Patient's appetite much better during the past week, and she feels stronger. The bowels are more regular, and defæcation less painful than formerly. There is no nausea or vomiting.

15th February.—Intra-uterine carbolic douche; rectal injection of hot water. Ordered milk diet peptonised (exclusively), essence of malt, and a mixture containing teaspoonful doses of aletris cordial, with citrate of ammonia and iron.

26th February.—Menstruation began on 22nd February, and lasted for five days; there was no pain either before or during the period. The discharge was bright red and healthy, and free from clots. The patient feels much better than formerly, is brighter and more cheerful, and her appetite is improving. I ordered—

℞.—Ferri et quininæ citratis,		1½ dr.
Spt. ammoniæ aromat.,		3 dr.
Syrupi zingiberis,		1½ oz.
Tincturæ nucis vomicæ,		2 dr.
Aq. menthæ piperitæ,	ad.	6 oz.—M.

Sig.—Take a tablespoonful in water thrice daily after food.

After this date she had no return of the uterine symptoms, although she suffered very much from gastro-intestinal catarrh, for which she was treated by bismuth, rhubarb, charcoal, peptonised and malted milk, and peptonised beef.

Case IV.—Mrs. W., æt. 35, came to me on 14th March, 1893, complaining of profuse leucorrhœa of five years' duration. The discharge was sometimes yellowish and sometimes white, and often had a foul odour. She was under the care of her own doctor for five years, and he gave her mixtures to take internally, but never made a P.V. examination. She has been married for six years, but has no children. Five years ago she had a miscarriage at six months, and this was followed by "inflammation of the womb," which laid her up for a month. Since that time she has never been in good health. She is very thin and spare built, and has a phthisical aspect; but there are no definite phthisical signs of phthisis in the lungs. She is also much troubled with dyspepsia, accompanied by flatulence and constipation. At present she menstruates regularly every four weeks. The discharge lasts two or three days, is scanty in amount, and sometimes contains clots; and the flow is usually accompanied by severe pain. The sound passes 2½ in., and the uterus is in its normal position. There is no erosion of the os externum. I gave a vaginal and intra-uterine douche, injected tincture of iodine by Braun's syringe, douched again, and inserted a glycerine tampon into the vagina. This treatment was continued until 15th April, twice weekly.

On 15th March I ordered a mixture with teaspoonful doses of aletris cordial.

On 4th April the discharge was much less in amount and healthy in character. There was no pain on passing the intra-uterine cannula. I ordered powders containing sub-nitrate of bismuth, compound liquorice powder, and ginger, to be taken every morning.

15th April.—The patient menstruated from 9th to 12th April. The pain at the period was much less severe than formerly, and there has been no leucorrhœa since the period.

There is no discharge on P.V. examination. The cervix appears healthy.

From 18th April till 6th May she was under treatment by boracic acid insufflations and glycerine vaginal tampons.

15th March, 1894.—Slight leucorrhœal discharge; some tenderness over the fundus uteri. I gave an intra-uterine douche, and applied tincture of iodine to the endometrium.

7th September.—Some hæmorrhage from internal and external piles; tenderness over the left ovary, and on both anterior and posterior walls of the rectum. On P.V. and rectal examination, uterus retroverted. Ordered hot vaginal douches, and poultices to the left groin; also regulated the bowels by confection of senna and sulphur; uterus replaced.

14th September.—Uterus again retroverted, but replaced by the sound, and No. 5 Hodge pessary inserted into the vagina.

19th September.—Pessary removed, as it caused undue pressure. I ordered vaginal douches, bromide mixture, and cascara.

3rd October.—Uterus in good position; much less pain in Douglas's pouch; glycerine tampon inserted; douches to be continued.

18th October, 1895.—On P.V. examination to-day there was no tenderness in the fornices, the uterus was of normal size, and the abdomen was soft and flaccid.

Under treatment the patient's dyspeptic symptoms very much disappeared, her appetite improved, she rapidly gained flesh, and her nervous system became so much braced up that she found pleasure in her work, instead of thinking life a burden, as in her former state of health. While under my care she had a course of tonics prescribed, the dyspeptic symptoms were treated, and the diet was carefully regulated. This patient was occasionally subject to attacks of hysteria, which were kept under control by preparations of valerian.

CASE V.—Mrs. J. J., æt. 29, was visited by me on 31st October, 1894. She complained of severe headache over the vertex, worst at the menstrual periods; also of profuse leucorrhœal discharge from the uterus between the periods for the past five and a half years, following an abortion; also of palpitation, breathlessness, dyspepsia, and nervousness. She is troubled much with nausea, and sometimes vomiting; has a very foul tongue in the mornings; swelling of the stomach after meals, and occasional pain over the stomach itself, and between the shoulders. She frequently suffers from flatulence, accompanied by a tympanitic distension of the stomach and bowels, and followed by palpitation and and breathlessness. The palpitation is made worse on exertion or after excitement, and is often associated with great nervousness. When papitation is severe, she has much throbbing pain over the crown of the head.

Menstruation began at 13, and was regular every four weeks (except for six months shortly after its onset) until marriage at 18. Before marriage, the menstrual flow lasted for seven days. It was excessive in quantity, usually contained some clots, but there was no pain before or during menstruation. She had one child born at full term ten years ago. The labour was very tedious, lasting thirty-six hours, but no instruments were used. She was attended by a midwife, and there was some difficulty in removing the placenta. The child was nursed fourteen months, and the patient had to work all that time. Two or three days after the confinement she had severe abdominal pain in the region of the uterus, several rigors, profuse perspirations, high temperature; the lochia came away freely, but had a very offensive odour. The breasts were both inflamed, but no abscess formed.

About two years after the birth of the child she had "inflammation of the womb," with severe abdominal pain. At that time she observed a large swelling about the size of a duck's egg in the left groin. It was raised above the abdominal surface, was very tender to the touch, was red and hard without any fluctuation. The swelling was dispersed by poultices in twenty-four hours without suppurating. She had very high fever at that time, and her life was despaired of by the doctor in attendance.

About a year after this attack (*i.e.*, five and a half years ago), she had an incomplete abortion at two and a half months; the membranes and clots came away in fragments. She did not have any ergot or other treatment to clear out the uterus. She was laid up in bed three days only. The abortion left her in a very weak state. After the abortion she began to be troubled with a profuse fœtid discharge from the uterus between the menstrual periods. The discharge varied in colour, from white or yellow to dark red or brown, and was sometimes greenish; had a very offensive odour, and occasionally contained clots. It has continued more or less ever since.

Two years ago she was attended by a doctor, who continued to visit her for about ten months at intervals. He introduced a Hodge pessary into the vagina, and made some local applications to the endometrium or the cervix. About that time she had also "inflammation of both lungs." Last menstrual period on 17th October.

On 31st October, 1894, I made a P.V. examination. The cervix was split transversely, and the os externum eroded. There was some tenderness in Douglas's pouch over the retroverted fundus uteri. Sound not passed. I ordered a purgative powder of calomel, jalap, and cinnamon, to be followed by a stomachic mixture, consisting of rhubarb, soda, bismuth subnitrate, and nux vomica, to be taken thrice daily.

2nd November.—Dyspepsia much less severe; uterus retroverted; sound passed 2½ inches. Iodised phenol applied on probe to endometrium. Vaginal glycerine tampon.

5th November.—Uterus retroverted, but replaced by sound; os externum much eroded still; stenosis at os internum. Iodised phenol applied to endometrium; glycerine tampon. Ordered pills of rhubarb and mercury every second night.

16th November.—Last menstruation on 6th November (five days ill; quantity of discharge large; very dark in colour, containing only a few clots; pain much less than the average, and headache during the period less severe than formerly). This week she has been much troubled with flatulent dyspepsia and nausea, but has had no vomiting. The flatulence gave rise to a great sensation of choking. I passed Gardiner's dilator, and then applied iodised phenol to the endometrium, and inserted a glycerine tampon. She was ordered powders of bismuth and lactopeptine.

19th November.—Dyspepsia much relieved by the powders, and great improvement in the appetite. Passed Gardiner's dilator, and then applied iodised phenol to the endometrium, and put a glycerine tampon into the vagina.

21st November.—Less swelling of the stomach after food; less flatulence than formerly; appetite improved; headaches much less persistent; bowels more regular. No discharge from the uterus since last menstrual period. Iodised phenol; vaginal tampon of borax and glycerine. The patient was ordered—

℞.—Magnesii carbonatis pond., . . .	3 grs.
Bismuthi subnitratis, ...	7 grs.
Lactopeptine (Richards'), . . .	10 grs.
Pulv. cinnamomi co., ...	3 grs.—M.

Mitte tales xii. SIG.—Take one powder in a little milk thrice daily.

23rd November.—Patient much stronger; swelling of stomach after food almost gone; nervousness less than before. Still slight tenderness in Douglas's pouch, and slight tenderness on passing the sound. Applied iodised phenol, and inserted glycerine tampon. The patient was ordered—

℞.—Arsenii iodidi,	3 grs.
Sacchari lactis,	48 grs.
Extr. gentianæ,	96 grs.—M.

Fiat massa, et div. in pil. xlviii. Sig.—Take one pill after breakfast and tea.

26th November.—Phenol applied; glycerine tampon; patient improving.

5th December.—Last menses 29th November (seven days ill; quantity large; very few clots; almost no pain during the period). No vomiting, but some flatulence with constipation. Ordered enemata of castor oil, soft soap, and turpentine for constipation. I also prescribed—

℞.—Pulv. rhei,	3 grs.
Bismuthi subnitratis,	5 grs.
Lactopeptine (Richards'),	7 grs.
Pulv. cinnamomi co.,	4 grs.—M.

Mitte tales xii. Sig.—Take one powder thrice daily in milk.

Iodised phenol applied to endometrium, and boracic acid and glycerine tampons inserted into the vagina on 10th and 17th December.

24th December.—After taking five dozen compound lactopeptine powders (in various combinations as above), dyspepsia has entirely disappeared; there is no pain or swelling of the stomach after food; there is no vomiting, or nausea, or retching. The tongue is clean now; the bowels are more regular without purgatives; palpitation, flatulence, and breathlessness have all considerably decreased. Phenol to cervix, small Hodge pessary. Douches ordered.

A CASE OF MOVABLE KIDNEY, WITH DILATATION OF THE STOMACH.[1]

By MATTHEW LOCHHEAD, B.Sc., M.B., C.M.

Mrs. M., æt. 46, dark and somewhat *petite,* was said, when first seen by me, to be suffering from recurrent attacks of sickness of four years' duration. She was very reduced, and her whole physiognomy suggested malignant disease of the stomach, or chronic gastric dilatation of some severity. Subsequent examinations by myself, and later by Dr. Pinkerton, showed that dilatation was present. On repeated examinations, splashing on swallowing and succussion were present, the area of stomachic resonance was increased downwards to half an inch from umbilicus, and inflation with air by Ewald's method showed this to correspond with the outline of the viscus. The vomited matter and washings were not putrescent; they were alkaline, usually dirty brown, contained much mucus, and sometimes bile. I did not test for free hydrochloric acid.

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[1] This case is reported by the kind permission of Dr. Charles Pinkerton, of Southport, whose assistant I was when it came under my notice.

The history of her condition, gathered from herself, is as follows:—Up to the age of 40 she had enjoyed excellent health, been rather full bodied, and had two children—the older now 14 years, the younger 11. At this time, *i.e.*, six years ago, she had a *crossed hemiplegic* seizure during sleep, involving the left side of the face and the right side of the body. A fairly good recovery had taken place by the end of nine months, but patient was thinner than formerly. At present the involved parts still show a distinct though slight enfeeblement and want of tone. All the reflexes are present.

Two years after this seizure, without any assignable cause, such as strain, &c., she began to experience dragging pains in the right side, mitigated or entirely absent while resting or lying down, but aggravated by walking, and thus restricting the use of her right leg. They grew worse towards evening, and when severe were accompanied by neuralgic pains, which radiated all over the abdomen, more especially downwards, both in the abdomen and right thigh. Soon after this her attacks of sickness began. These were always on the same plan. At night she had increased pain, with tenderness and sinking sensations, and in the early morning was awakened from sleep by violent sickness and vomiting, which usually lasted two or three days. At such times she noticed a soft tender body somewhat to the right of the umbilicus, and about that level. She could not in any way account for the occurrence of these seizures, which came on less frequently and less severely at first, but latterly every eight days. From time to time there had been unaccountable periods of immunity, and during the summer of 1894 she had kept well for six months; then, without any apparent reason, they returned in October, and in a severe form. She now noticed, for the first time, that as each passed off the urine was "red with blood" for several days. These recurred every week till patient was so reduced that she was sent to a hospital in Manchester, on the supposition that she had gastric carcinoma. In hospital she remained well, and was dismissed at the end of a month much improved. But on returning home the attacks recommenced, and she was quickly reduced lower than ever, and was at her lowest when I first saw her.

I saw her during three paroxysms. There were severe sickness and vomiting, with marked prostration and faintness, which made her think she must die. Her abdomen was extremely painful and tender all over, but in the right lumbar region this was concentrated, and here, as she had said, I found a large, soft, elastic tumour, very tender, and causing sinking and an aggravation of all the other symptoms on pressure. The sickness and prostration continued three days, during which the urine was normal, but naturally reduced in amount. On the evening of the third day, as the symptoms abated, the urine became bright red on two occasions from abundant blood, numerous red discs being found, but no pus or other sediment. This rapidly lessened, and in five days had completely disappeared. Simultaneous with the hæmaturia, the size and tenderness of the tumour diminished, and in two days could be freely handled. It was obviously a displaced kidney, and was returned to its normal situation, when the flattening observable at that spot became filled up, and the pains gave place to a sense of comfort. Movement was not very easily affected, but it ranged down to the superior iliac spine when the unpleasant sensations were increased.

Between the attacks the appetite was poor, and she suffered from flatulence and distension. She often could not bear the weight of her clothes round her waist. The kidney was usually to be found about the level of the umbilicus, when it pressed on the ascending colon. I could not persuade myself that it dragged on the duodenum. Bowels constipated, and very uncertain in their action after aperients. Urine normal.

The treatment consisted in rest, dietary, restriction of fluids, regulation of the bowels, the exhibition of dilute hydrochloric acid and strychnine, washing out the stomach by means of the syphon, and the wearing of an accurately fitting body-belt, with a No. 7 soft cushion pessary as a pad, the usual pad being found too small. She was also taught how to replace the organ, and so prevent strangulation. Improvement followed quickly, and although once or twice she had mild sick attacks due to carelessness, at the end of five months she had the look of health, could engage in baking and housework, and was altogether a renewed woman.

CASE OF MULTIPLE POLYPI IN THE STOMACH.

By J. BARR STEVENS, M.B., C.M.,
Assistant Physician, Woodilee Asylum, Lenzie.

The following notes form a synopsis of the history of a case of multiple polypi in the stomach, and of the *post-mortem* examination of the subject of this rare condition. The exact state of matters was not recognised during life, although the patient was subjected to many careful examinations by several physicians. The distension of the organ involved undoubtedly obscured the diagnosis. The patient was an epileptic, subject to attacks of maniacal excitement, and having delusions. Once only, viz., on his first admission, was there reference in his delusions to the state of his stomach and bowels. It is interesting to note that there was a well-marked aura referable to the stomach. Death was evidently due to exhaustion produced by the epilepsy. Enquiry might well be made as to whether or not the stomach condition was in any way associated with the cause of the fits.

T. L., boilermaker, æt. 42, was admitted to Woodilee Asylum for the first time on 28th May, 1883. On admission he walked about in a highly excited state, stamping with his feet, gesticulating wildly, saying that his bowels were being cut up. He improved rapidly, and was at work daily in the grounds for some time before his escape on 2nd July.

He was again admitted on 11th August, 1884, certified as being subject to attacks of maniacal excitement due to epilepsy. The fits were at first pretty frequent; but in March, 1885, it is recorded that he was having fits only at long intervals, which left him stupid and confused for a day or so. He was discharged, relieved, by minute of Board.

He was admitted for the third time on 21st June, 1887. He was brought to the Asylum in a strait-jacket, being in a state of maniacal excitement. On admission his physical condition was very poor, his arms and legs were covered with bruises, but no internal or severe injury could be detected.

During all the years succeeding his last admission he was subject to epileptic fits of great severity. There was a distinct aura referable to the stomach. He described an indistinct sensation which he felt first in his stomach, and which seemed to ascend towards his head, being then succeeded by a fit. Latterly he had fits every other day, always having two or more in a week, and sometimes as many as five or six in a day.

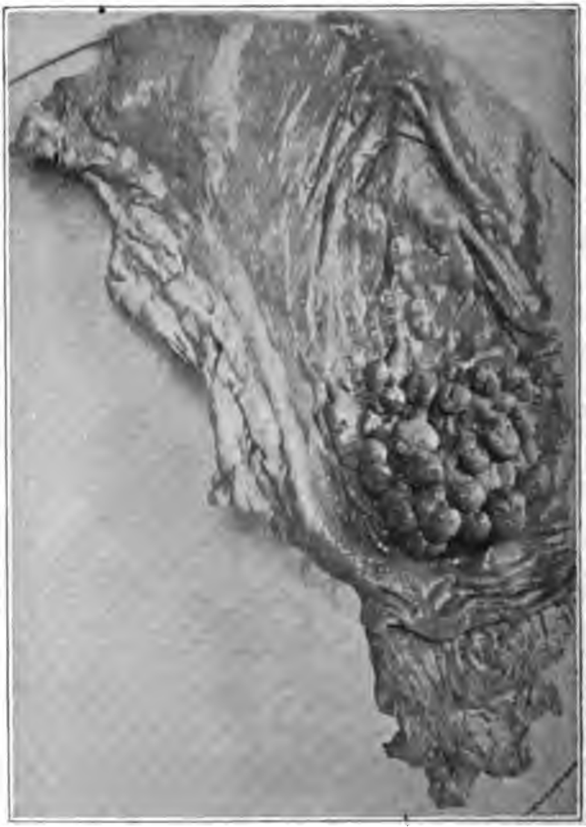
On 20th February, 1893, he dislocated his right shoulder during a fit. The dislocation was subglenoid, and was at once reduced. A state of maniacal excitement usually succeeded the fits. In this he tried, without provocation, to kick and bite those about him. He suffered also from chronic bronchitis. He frequently had attacks of slight diarrhœa and sometimes of vomiting, very large quantities of partially digested food being vomited. He did not complain of any pain in his stomach, but frequently refused at meal times to eat any food. Purgatives or other medicines administered from time to time always produced due response. He frequently complained of pain in a small cyst which was situated in the skin of the left side, just below the edge of the last rib, an inch and a half behind the posterior axillary line. He always complained of pain there after a fit; and if it were touched at any time, as when he was being bathed, he was always much enraged. During his last year he was very pale, and at times somewhat livid. He was not emaciated. He never suffered from jaundice.

On 29th October, 1895, after a series of fits, he complained of feeling very weak, and was put to bed. The extremities were cold, and the pulse weak and rapid. He complained also of severe and continuous pain on the right side of the abdomen under the edge of the liver. On examination nothing abnormal was made out in the condition of the abdomen beyond distension of the stomach. There was no vomiting nor any evidence of intestinal obstruction. Breathing was rapid and noisy; a few sonorous râles were heard in the chest. Next day he was much weaker, and there were some indications of œdema of the lungs. He gradually grew weaker till 4th November, when he lay in a semi-unconscious condition, with dilated pupils which did not respond to light. He died that evening.

At the *post-mortem* examination there was found much dilatation of the small vessels of the meninges of the brain, but the brain itself appeared to the naked eye remarkably healthy. The lungs were found to be very œdematous and congested along their posterior borders, and in the smaller bronchi there was a considerable quantity of a thin purulent exudation. There was no connection between the small cyst on the abdominal wall and any of the internal organs. It was an atheromatous cyst, and, when dissected out, about the size of large bean, and having a very thick capsule.

The stomach was much distended. The pylorus was thickened. From the lower and posterior part of the external wall near the pylorus there projected into the cavity of the organ a dense mass of soft polypi, each with a fairly distinct pedicle, the whole rising from a somewhat thickened base about three square inches in extent. No other abnormalities were noted.

In the photograph the stomach is so hung that the polypi stretch downwards towards the pylorus, and it can be seen that the longest of these does not reach that opening; but it is more than probable that during life the contractions of the stomach caused the polypi to act like a ball-valve to the pyloric opening, and so led to the distension of the stomach.



Stomach with Multiple Polypi.

A section of one of the polypi showed it to have a simple mucous formation. There was no development of cysts, and no secondary tumours.

CURRENT TOPICS.

Medico-Chirurgical Society of Glasgow.—At the annual general meeting of this Society, held in the Faculty Hall, 242 St. Vincent Street, on 8th May, the following gentlemen were elected office-bearers for Session 1896-97:—

President,	Dr. W. L. Reid.

Section of Medicine.

Vice-President,	Dr. Alex. Napier.
Councillors,	Dr. R. B. Ness. Dr. Maitland Ramsay.
Secretary,	Dr. Hinshelwood.

Section of Surgery.

Vice-President,	Dr. Newman.
Councillors,	Dr. Walker Downie. Dr. J. H. Nicoll.
Secretary,	Dr. John Barlow.

Section of Pathology.

Vice-President,	Dr. T. K. Monro.
Councillors,	Dr. Lindsay Steven. Dr. Henry Rutherfurd.
Secretary,	Dr. R. M. Buchanan.

Section of Obstetrics.

Vice-President,	Dr. Samuel Sloan.
Councillors,	Dr. J. Nigel Stark. Dr. Edgar.
Secretary,	Dr. Lawrence Oliphant.

Treasurer,	Mr. Henry E. Clark.
General Secretary,	Dr. C. O. Hawthorne.

Glasgow Hospital Reports.—A movement has for some time been on foot to establish a yearly volume of Hospital Reports in Glasgow, similar to those published in Edinburgh. At a recent meeting of members of the hospital staffs in Glasgow and the West of Scotland, a resolution approving of the proposal was unanimously passed, and a large and influential Committee appointed to consider the proposal, and, if possible, carry it into effect. We understand the members of the Committee are going on vigorously with their work, and we very heartily wish success to the project.

The Will of Maister Peter Lowe.—As we go to press we have been informed that the will of the founder of the Faculty of Physicians and Surgeons has just been discovered, by Mr. Gray Buchanan, among the ancient records preserved in the Town Clerk's office. It may be expected that when this document is fully investigated additional details as to Lowe's life may come to light. So far, it would seem that the current belief as to the date of his death being after the year 1612, when his work on Surgery was issued from his house in Glasgow, is erroneous, as the will makes it clear that he died nearly eighteen months before this.

COLLEGE OF PHYSICIANS OF PHILADELPHIA—THE WILLIAM F. JENKS MEMORIAL PRIZE.—The fourth triennial prize, of four hundred dollars, under the deed of trust of Mrs. William F. Jenks, will be awarded to the author of the best essay on "The Etiology and Pathology of Diseases of the Endometrium, including the Septic Inflammations of the Puerperium." The prize is open for competition to the whole world, but the essay must be the production of a single person. The essay, which must be written in the English language, or if in a foreign language, accompanied by an English translation, must be sent to the College of Physicians of Philadelphia, Pennsylvania, U.S.A., before 1st January, 1898, addressed to Barton Cooke Hirst, M.D., Chairman of the William F. Jenks Prize Committee. Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The Committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year. The Committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

NEW DRUGS, PREPARATIONS, INSTRUMENTS, &C.—*Apenta Water.*—At the request of the Apollinaris Company, Ltd., we made arrangements for a somewhat extensive trial of this aperient water in the medical wards of one of our hospitals. We have now to report that, as a natural aperient water suitable for ordinary constipation and other conditions in which it is desirable to ensure a free daily evacuation of the bowels, it has been found to be most satisfactory. The dose necessary to produce an evacuation has been found to vary from 2 oz. to 6 oz., administered on an empty stomach early in the morning. The taste of the water, though bitter, is by no means disagreeable, and it is easily taken by patients.

There have been no complaints of pain or sickness being produced during the action of the water, and as an aperient in cases of dyspepsia, chronic Bright's disease, chronic rheumatism, &c., it has been found to be very useful. The Apenta Water is obtained from the Uj Hunyadi springs at Buda Pest in Hungary, and, from the experience of its use in the wards of the hospital, we have no hesitation in recommending our readers to give it a trial.

Æsculap is the name of another well-known aperient water of which we have recently received specimens from the Æsculap Bitter Water Company, Ltd. It is well known to the profession as a valuable remedial agent in stomach and intestinal affections, and is obtained from the Æsculap spring, situated in the Helenföld, Buda Pest.

For further particulars as to these waters, we refer our readers to our advertisement pages.

Messrs. Burroughs, Wellcome & Co. have sent specimens of some new tabloids of compressed drugs to which we call the attention of our readers:—

Pancreas substance tabloids, containing 5 grs. in each, are worthy of notice from the relationship of disorder of this gland to glycosuria. These tabloids are keratin-coated, so that they may not dissolve until they reach the alkaline contents of the intestine.

They have also prepared keratin-coated tabloids of purified ox bile, which may be of service in diseased conditions of the liver, where bile is not obtaining free access to the alimentary canal.

Oxalate of cerum, effervescent citrate of lithia, and bitartrate of lithia can now be had in tabloid form.

For convenience in the preparation of antiseptic lotions they have also devised "soloids" of pure carbolic acid. Each soloid contains 5 grs. of carbolic, and hence solutions of known strength can readily be prepared. The "soloids" are distinguished from "tabloids" by their larger size and by their characteristic colour, which is communicated to the water in which the soloid is dissolved.

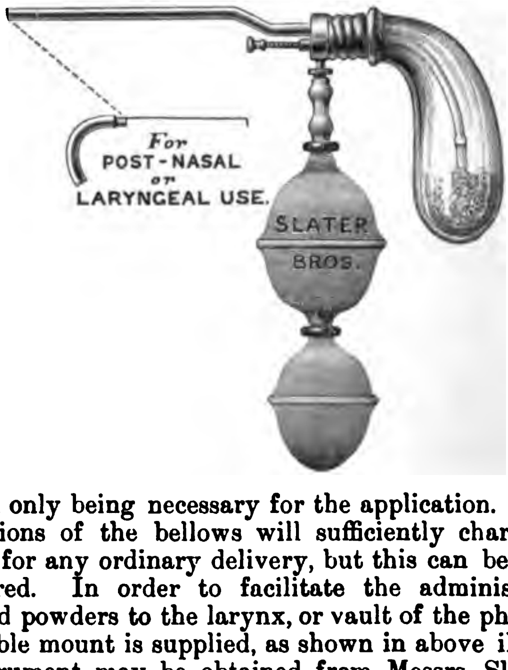
A 'Soloid.'

A 'Tabloid.'

The Liquor Carnis Co. send us a sample of Caffyn's Liquor Carnis (improved) in which great improvements have been made in covering the raw meat flavour, and in which they have been able to increase the proportion of muscle-plasma or nourishing material. The liquid may be given in combination with hot beef-tea or soups without deteriorating its food value.

Messrs. Thos. Christie & Co., of Lime Street, London, send us a litmus pencil, which we have found to answer its purpose well. One end of the pencil is blue litmus, the other red. If marks are made on a little piece of white paper with the pencil we have efficient blue and red litmus paper at once produced.

The *compressed air pistol* is designed as a powder insufflator to meet the requirements of the medical profession. By the employment of this instrument, a diffusion of powder can be administered without diverting the end of the throat tube from the affected part. The advantage of this is obvious, and owing to the unique construction of the compressed air valve, which can be actuated by the index finger while holding the instrument, an instantaneous delivery of powder is effected, one hand only being necessary for the application. Two firm compressions of the bellows will sufficiently charge the air chamber for any ordinary delivery, but this can be regulated as required. In order to facilitate the administration of medicated powders to the larynx, or vault of the pharynx, &c., a reversible mount is supplied, as shown in above illustration. The instrument may be obtained from Messrs. Slater. Bros., 20 Baker Street, W., London.



The "Policeman" at the Dinner Table.—The fact that at all our formal dinner parties it is essentially necessary to employ the "policeman" is a decided reflection upon our culinary knowledge. If stated in a bold matter of fact way it would cause quite a shock to most people to be told that, in consequence of what they had eaten, they must take a dose of medicine (in the form of a liqueur or a "policeman") to prevent their being ill. The fact is, all our dishes are much too heavy, and the more's the pity, for a very little study would lead to our substituting light and digestible little entrées for the heavier dishes we are so fond of. These remarks have been called forth by seeing a little book on cookery issued by the Liebig's Extract of Meat Co., in which there are no end of recipes for those little dishes, which are a pleasure to eat and no pain to digest. We see the Company give the book away, and so there is no excuse for housewives to remain in ignorance any longer.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1895-96.

MEETING VI.—13TH DECEMBER, 1895.

DR. EBEN. DUNCAN *in the Chair.*

I.—A PATIENT TREATED BY SYPHILITIC ANTITOXIN FOR SECONDARY SYPHILIS.

BY PROF. M'CALL ANDERSON.

J. C., male, aged 22, admitted to hospital on 11th November, 1895, suffering from well-marked secondary syphilis. From 15th November till 9th December, 1895, he had twelve hypodermic injections of serum on alternate days, the quantities varying from 0·5 to 5 c.c.—in all, 35·5 c.c., or approximately 1¼ oz. His condition improved rapidly under the treatment. (See *Glasgow Medical Journal*, p. 264, for original report.)

II.—THE SCHOTT TREATMENT.

BY PROF. M'CALL ANDERSON.

1. A. B., female, aged 58, came under treatment for an aneurysm of the transverse part of the aortic arch. The

cardiac dulness measured 3·75 inches in the transverse direction. From 7th August till 13th September, 1895, she had twenty-eight baths; two or three were given on consecutive days, the others on alternate days. At the end of the course of baths the patient's general condition had greatly improved, and the transverse cardiac dulness was reduced to 2·5 inches.

2. Mrs. B., aged 30, housewife, was admitted to the Western Infirmary on 1st November, 1895, complaining of weakness, palpitation, and breathlessness on exertion, and cough of six months' duration. Before treatment by systematic exercises, the apex beat was 2⅝ inches below, and 1¼ inches to the left, of the nipple line. The transverse cardiac dulness was 5⅝ inches, extending from the left edge of the left nipple line. The pulse was 152, and very irregular. After the exercises the apex beat was 2·5 inches below, and 0·5 inch outside, the nipple line. The transverse measurement was 4·25 inches, and the pulse was from 88 to 104. Her general condition was very much improved. (See *Glasgow Medical Journal*, p. 266, for original report.)

Dr. Eben. Duncan thanked Prof. M'Call Anderson for bringing the subject before the meeting. In his own practice he had treated nine patients by the method, and, from the varied nature of the cases and the results of treatment, he had been able to form an opinion as to the proper subjects for treatment. It might be used in patients suffering from ordinary forms of valvular disease with dilatation, and in the early stages of aneurysm; but it was clearly inadmissible in advanced aneurysm, atheromatous vessels, and fatty degeneration of the cardiac muscle. He did not think the diminution of the cardiac dulness was real, as the apex beat becomes elevated and moves nearer the nipple line, and the upper level of hepatic dulness remains unchanged. He looked upon the new treatment as an enormous advance on previous practice.

Dr. Messer, Helensburgh, gave details of a case, treated some years ago by baths and exercises, where the patient, who had gone home to die, was restored apparently to good health.

Dr. Jack corroborated Prof. M'Call Anderson's account of the results of treatment in the case of aortic aneurysm, and laid special emphasis on the diminution of the cardiac dulness and the recession of the apex beat.

Dr. Auld asked how aneurysm could be benefited by the treatment, if the beneficial result was due to action on the muscles.

Dr. Somerville had no experience of the new method of treatment, but he had noticed the beneficial results of exercise. In the case of a lady, aged 37, who suffered from dilated heart and asthma, graduated exercise improved her condition. He did not approve of the exercises as demonstrated by Prof. M'Call Anderson. He would not let a patient with heart disease stand in doing the exercises, and he would eliminate the exercises that subjected the patient to undue strain.

Dr. Hinshelwood said he was sceptical as regards the new method, and watched Mrs. B. under treatment. The result was decided, the cardiac dulness was diminished, the pulse was improved, and the symptoms of distress were removed. He had looked up the literature of the subject, and found that those experienced in the treatment all differed as to the *rationale,* but were unanimous as to the results. This unanimity, and Prof. M'Call Anderson's demonstration, were proofs of the value of the treatment.

Dr. M'Gregor Robertson said he had visited Schott at Nauheim, and placed a patient under his treatment. Anyone who had seen the whole method of treatment and the results must believe the statements as to the value of the new method. The patient, before treatment, was pallid and worn, had dark rings round the eyes, and walked with difficulty; after the bath she came out looking pleasant and bright, and walked very well. As to the *rationale* of the treatment, he thought Saundby's explanation would not stand examination. He did not believe that a bath of five minutes' duration and two simple exercises could strengthen the cardiac muscle; the result was probably due to a redistribution of the blood from changes in the peripheral vessels. The slowing of the pulse and the change in blood pressure do not set aside this explanation. In one of Dr. Duncan's cases, the first few seconds in the bath caused discomfort. This was due to contraction of the superficial arteries, caused by the saline ingredients of the bath stimulating the skin, followed by a rush of blood to the skin, and consequent relief. Pulse tracings should be taken at once on coming out of the bath, as the heart recoils and dilatation occurs an hour afterwards for a day or two, and the heart does not creep in permanently until three or four weeks of treatment. The removal of inflammatory products, and the increase of urine after the baths, are capable of similar explanation, and if the explanation be correct, the treatment is not limited to cardiac disease.

Dr. Kirk had his attention drawn to the new method by Dr. Thorne's results. He subjected a patient with dilatation of the heart to a course of fourteen baths, combined with strict regimen and deprivation of whisky. His general appearance was greatly improved, and the apex beat, which was 1 in. outside the nipple line before baths, receded towards the middle line. He had read Dr. Thorne's book and noted one case in particular, where the pulse was 96 before the bath and 80 in the bath, and as nothing was said as to the patient's posture when the pulse was taken before the bath, it was quite possible that the reduction in pulse-rate was chiefly due to change of posture. As to the *rationale* he agreed with Dr. M'Call Anderson and Schott.

Dr. Wright said Mrs. B. was one of his patients, and he had known her condition for two years, and had treated her on several occasions by rest in bed and digitalis. After a rest in bed she could resume her household duties, and appeared to be as well then as she was to-night. He had taken the opportunity of asking her if she felt more benefit from the new treatment than from the old, and she answered no.

Dr. Hawthorne said they were indebted to Professor M'Call Anderson for bringing forward these cases in detail. He thought that as some cases were unsuccessful, we should have some indication as to the cases likely to be benefited by the treatment, and that an attempt should be made by pulse tracings to determine whether the treatment does or does not increase the blood pressure. He regarded as doubtful the explanation of the results by a supposed dilatation of the peripheral vessels and a fall of blood pressure, as the slowing of the heart, the diminution of dropsy, and the increase of urine all pointed to an increase of pressure.

Dr. M'Vail said that he could not agree with Dr. Hawthorne's statement that Dr. Anderson had given the cases in detail, as there was an absence of precision throughout. There were no sphygmographic tracings, and no clear account of the patient as she would have been with rest alone. All the cases he had seen and heard of were loosely recorded as to the condition before treatment began; there was nothing as to the influence of rest on the pulse, varying as it did from day to day and from one part of a day to another. Everything was left out of account. As an illustration of the want of precision, take the first case, which was chiefly one of aneurysm; the patient was treated by rest, &c., and we are led to believe that there was a change in the position of the apex beat. "Is it easy to determine the size of the heart from day to day? How is the heart percussed, and what part of the heart can you get a definite sound from?" The liver is defined by palpation and not blundered by percussion; and an emphysematous lung can be defined within half an inch, but only by the stethoscope, and not by the eye; so also the heart can be defined within a quarter or half an inch, but by the stethoscope only, and not by percussion as Dr. Anderson's diagrams would lead us to suppose. Then, as to the exercises, he was sceptical as to the utility of these movements. He has had many patients under treatment for heart disease who had, previous to admission, been in the habit of performing many movements, yet as these seemed to fail, could a gentle flexion of the arm have the influence ascribed to it in the new method of treatment? He said a close observation of cardiac cases suggested an explanation of the results, which are due to rest and medicine, and sometimes rest alone. When ordinary hospital practice failed, the new treatment might be considered. Certainly if two or three simple movements of the arms or the use of baths do the good alleged, the age of miracles is not past.

Dr. Lindsay Steven said he had, during the discussion, made a rapid examination of the patient's heart. The transverse cardiac dulness was 4·5 in., the apex beat was 1·5 in. outside the nipple line, and the heart greatly excited. He regarded the patient as anything but cured, and was willing to admit her to his ward at once for immediate treatment. He had seen nothing marvellous in the results of the treatment as demonstrated.

Professor M'Call Anderson agreed with Dr. Somerville that the exercises could be modified with advantage. He reminded Dr. Steven that the patient was compelled to go home before the treatment was ended, and she was nervous on account of her sick child, also that the examination Dr. Steven made was not conducted carefully, whereas the previous examination had been made in bed. He did not agree with a single statement made by Dr. M'Vail. It was difficult to make out the heart in obesity, but easy in all other cases. He was careful to map out accurately with the patient lying at rest, and he always secured verification of his measurements. His own observations tallied with the observations of Saundby, Broadbent, and Schott, therefore must be correct, as against Dr. M'Vail who has had no experience of the method of treatment. Mrs. B. was in bed fourteen days before treatment was tried, and she got worse in bed.

MEETING VII.—10TH JANUARY, 1896.

The President, DR. W. L. REID, *in the Chair.*

I.—NOTES OF A CASE OF VAGINAL CYSTOTOMY, WITH EXHIBITION OF THE STONE FOR THE REMOVAL OF WHICH THE OPERATION WAS PERFORMED.

BY DR. W. L. REID.

Miss M'N., æt. 59, was first seen by me on 19th October, 1895, with a history of pain in the bladder and frequency of micturition for sixteen or seventeen years past. She is a maiden lady of retiring disposition, and although she consulted various medical men and took much medicine, she had, until then, refused to permit a local examination, and then only because of the severe pain.

The urine was found albuminous, and with a large mucopurulent deposit. Its specific gravity was 1026, and it contained little or no blood.

On a sound being passed into the bladder, a rough and apparently large stone was felt. The vaginal orifice was so contracted and tender that no satisfactory examination of the base of the bladder could be made.

The vagina was douched for the previous twenty-four hours with a 1 in 2000 solution of corrosive sublimate; and on 25th October, with the assistance of Dr. A. W. Russell, the patient was put under chloroform, and the urethra dilated so as to admit of the passage of the little finger. It was then ascertained that removal of the stone *per urethram* was out of the question. The perineum was therefore split to near the anus, and the base of the bladder cut through in the middle line from the cervix uteri to the neighbourhood of the sphincter. Even with this large wound, it was a matter of difficulty to grasp the calculus with the forceps and drag it through the opening. The bladder and vagina were well washed out with boracic solution, and, in view of the unhealthy condition of the interior of the bladder, no attempt was made to close the wound. The calculus, in the fresh state, weighed 872 grains.

The patient had little after-pain and no raised temperature, and the treatment consisted in vaginal douches containing boracic acid, and the same drug by the stomach in 10-grain doses three times a day.

In eight days the patient began to pass some urine by the urethra, and in the fifth week the wound in the bladder had quite healed. At this date (10th January) the patient is well, except that for a day or two now and again there is some discomfort in the bladder, accompanied by mucus in the urine, and she has to return for the time being to the use of the boracic acid powders.

Dr. Jas. A. Adams asked if the patient, after the operation, retained control over the bladder. He also desired to elicit the President's experience of supra-pubic cystotomy as the preferable operation in these cases. In three cases lately occurring in his own practice, supra-pubic operation was performed with excellent results. In one of these cases the stone was very large, and occurred in a man aged 74 years. The bladder and the superficial wounds were both stitched up and healed by first intention, and the man was well and about again in fourteen days. In another case, of an equally large stone, and operated on in a similar manner, all went well till the fourteenth day, when the instrument slipped out, and slight leakage took place from the wound, but the patient ultimately did well. In the male especially the operation was to be recommended, more particularly if a large catheter could be tied in. The mucus readily escaped from the bladder, and there was no mutilation of the prostate and urinary tract.

Dr. Reid, in reply, stated the patient had control over the bladder. His experience of supra-pubic cystotomy was *nil,* and that for two reasons—first, owing to the dilatable urethra the majority of his cases had been treated by dilating the urethra, and subsequently extracting the calculus by the urethra; and, secondly, if the stone proved too large, the contiguity of the vagina and bladder made vaginal cystotomy an easy and effective method, and the results obtained could not be surpassed by the other operation. Therefore, he felt inclined to stick to the vaginal operation in the female.

II.—ON SHORTENING OF THE ROUND LIGAMENTS IN DISPLACEMENTS OF THE UTERUS.

By Dr. Jas. A. Adams.

This operation was first brought before the profession in 1882 by Dr. Alexander, of Liverpool, and by myself, as a substitute for ineffectual stems, pessaries, &c. Since then the utility of the operation has been much discussed: some English surgeons condemn it absolutely; whilst others, especially those resident in the Midlands, claim that it possesses great value in suitable cases. In this city it has not taken the position that I think it is entitled to, although I know that Dr. Reid has operated in many cases, and I trust we shall have the benefit of his experience this evening. My junior position when I introduced the operation, and the lack of opportunity for testing its efficacy in suitable cases in private and hospital work, prevented me from bringing it prominently before the profession in Glasgow. With greater facilities and larger experience, I have of late years tested the operation thoroughly, and the confidence I feel in its success impels me to ask my obstetric and surgical colleagues to give it a fair trial.

Curiously enough, the operation has found warm advocates on the Continent, and in France, Germany, and America it has been adopted by many eminent surgeons. Kocher, in his very excellent work on surgery, recently published, has devoted some space to the details of the operation, and advocates stitching the ligaments backwards towards the anterior superior spinous process instead of to the pubis.

In the quite recent work by Keating and Coe, *Clinical Gynæcology by American Authors*, the writer at pp. 505, 506 states—"I have thus far during the past ten years performed it sixty-five times, with such success both as to the immediate and permanent results as to render me more and more enthusiastic in its favour. I have not only succeeded in lifting up and keeping the uterus in its normal position for years after the operation, but I have seen probably as many as a dozen of the cases conceive, go to term, be normally delivered, and the uterus retain the position in which I placed it in."

The round ligaments, upon which we depend, vary in their strength and development, and I may be permitted to quote, from a paper I published in 1882, the following sentences:—

"The *round* ligaments have attracted the attention of many anatomists since they were specially referred to by Carolus Stephanus. To him may in truth be attributed the merit of their discovery, but it is to Winslow we are indebted for the first accurate description. That the round ligaments contain muscular fibres was first pointed out by Meckel, although he did little more than refer to these organic fibres as being continued on the round ligaments from the walls of the uterus itself. I note that above twenty authors, more or less eminent, have since given detailed descriptions of the structure, relations, and supposed uses of the round ligaments.

"Amongst these observers Rosenberger may be specially mentioned as having distinguished three fasciculi of striated muscular fibre, of which two join the transverse abdominal muscle, while the third ends at the upper margin of the external abdominal ring. Rau has described, in the round ligaments, fibres which terminate in the mons veneris and vulva, and others which he traced to the crest of the pubes. He held that the uterus was drawn down and fixed by the round ligament,[1] during the ninth month of pregnancy, and while the pains of labour occurred; and in these views he is corroborated by Velpeau, who states that he has seen these ligaments contracting, and also by Schweighauser, who felt a vermicular motion in them in a case of inverted uterus.

"Dr. Schïff first pointed out that the round ligaments became greatly enlarged during pregnancy, even to four times the thickness, he alleges, of their condition in the virgin, and he states that they end in a kind of cone on the walls of the uterus. My own dissections of uteri in the conditions which attend the impregnated state so far confirm the views of Dr. Schïff as to satisfy me that a decided increase in the size of the round ligaments is a certain result, but not that the change is so considerable as Schïff has attempted to make out.

"But the most complete and altogether reliable description of the round ligaments is that given by Dr. Rainey,[2] who says—'The so-called round ligaments of the uterus, regarded as a muscle, may be said to arise by three fasciculi of tendinous fibres—the inner from the tendon of the internal oblique and the transversalis near to the symphysis pubis; the middle, from the superior column of the external ring near to its upper part; and the external fasciculus from the inferior column of the ring just above Gimbernat's ligament. From these attachments the fibres pass backwards and outwards, soon becoming fleshy. They then unite into a rounded cord, which crosses in front of the spermatic artery. . . . It then gets between the two layers of the peritoneum forming the broad ligament, along which it passes backwards, downwards, and onwards to the anterior and superior part of the uterus, into which its fibres, after spreading out a little, may be said to be inserted. . . . After passing between the layers of the broad ligament to about the distance of an inch and a half from its superior part, they degenerate into fasciculi of granular fibres, mixed with long threads of fibro-cellular tissue.'

"Besides muscular fibre, the round ligaments contain numerous vessels, together with some nerves and also absorbents. The arterial trunks are large, but the capillary vessels are similar to those found in ordinary muscular tissue. Intermixed with the substance of the round ligament there is a very considerable quantity of fibro-cellular tissue, so great indeed as to lead a superficial or incautious observer to overlook altogether the presence of muscular fibre, more especially as the colour of the muscle is pale and in contrast with the deep red of voluntary muscle in the limbs. But of the character of the muscular tissue found in the round ligament there is no doubt, and it is easy to demonstrate its striped nature under the microscope. Of this character I have sufficiently satisfied myself, and my friend and colleague, Dr. Allen, in his independent examination of the tissues under the microscope, found it clearly demonstrable that the muscular fibre was of the voluntary or striped variety.

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[1] *Stricker's Jahrbuch*, 1872. [2] *Transactions of the Royal Society*, 1850.

"The fact that the round ligament is composed in chief part of muscular tissue leads naturally to an inference—but to an erroneous inference—that the ligament would prove friable or easily torn asunder. Such, however, is far from being the case, for in thirty subjects in which I have sought specially to determine this point I have found that the structure was capable of withstanding a very considerable traction. I found it easily capable of drawing the uterus close up to the internal inguinal ring without in any perceptible degree lacerating, much less snapping asunder, the ligament itself. This degree of tenacity is no doubt due to the abundance of fibro-areolar tissue which is intermixed with the muscular.

"So much for the mere structural anatomy of the uterine ligamentous appendages, and we are now open to consider what the functions may be of the round ligaments—of the long bands—that are so curiously constructed.

"In such of the lower animals as have the uterus situated above the pelvic brim, as the dog, sheep, &c., the so-called round ligaments pass forward from the uterus and are attached to the last rib and to the aponeurosis of the diaphragm, consequently they draw the uterus upward and elongate the vagina. Velpeau,[1] Maygriers,[2] and Rainey[3] agree in a conjecture that this elongation facilitates the passage of seminal fluid towards the os uteri. However this may be, the conjecture is only referred to in the present connection as illustrative of the varied functions which are attributed to the round ligaments and of the important considerations to which a study of their functions gives rise. In the human subject they are certainly not rudimentary organs, but have important offices to perform. Thus, beyond question, they prevent the fundus of the uterus from being pressed too much in a backward direction, and likewise aid much in preventing the entire body of the uterus from being prolapsed and from resting with undue weight upon the rectum. They also facilitate the process of parturition by fixing and maintaining the uterus in due relation to the pelvis during the pains of labour, and it is very probable that they further aid in preventing the gravid uterus from falling backwards and pressing upon and obstructing the action of the lower intestines.

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[1] *Anat. Chir.*, 1833, vol. ii, p. 272.

[2] *Nouvelles Demonstrations d'Accouchement*, p. 62.

[3] *Phil. Trans. Roy. Soc.*, 1850.

"After this exposition of the relations and functions of the structures which sustain the uterus in its normal position, it is easy to recognise that where the round ligaments have from any cause or set of causes become relaxed the liability to prolapsus or to versions of the uterus is likely to occur. And it is equally evident that by drawing up and shortening the round ligaments the uterus will be suspended upright so to speak, in the pelvic cavity, and will be sustained in that normal position without being subject to the numerous causes of irritation and of displacement which attend upon the employment of mechanical appliances *ab externo.*"

The advantages claimed for this operation, when properly performed, are as follows:—It rectifies all cases of retroflexion and retroversion *where no adhesions exist;* by it most, if not all, cases of prolapse can be kept in proper position with or without the aid of a pessary; it leaves the vaginal functions unimpaired; it is practically without risk; and, lastly, it is easily performed with a little practice.

The disadvantages are that the ligaments may be small, weak, and difficult to find; but I have no hesitation in stating that, if they are not found, the fault lies with the operator. The patient requires to lie at least a month in bed, and if the inguinal canal is not properly closed a hernia may develop.

Of late I have treated all cases of retroflexion, with the usual muco-purulent flow from the os uteri, by dilating, curetting, packing with iodoform gauze, and shortening the round ligaments.

Regarding the operation itself, I think the following details are important:—The parts are carefully shaved, and the patient kept two days in bed. The temperature should be carefully noted during this period. The vagina should be well douched with warm boracic solution, and the rectum thoroughly emptied.

A large rubber watch-spring pessary should be introduced, and left in the vagina for three or four months after operation. The skin should be well scrubbed with turpentine and spirits of wine in preference to ether, and the parts protected in the usual manner. The skin incision should be semilunar and not over, and in the position of the inguinal canal. This semilunar flap is turned downwards, and when replaced it brings a firm pad of healthy skin against the wound in the external oblique tendon. The wound is also less likely to be soiled by the dressings slipping.

If any difficulty occur in finding the ligament the canal should be split open, and in drawing the ligament out the peritoneum peels easily off the cord. On no account should the stitches retaining the ligaments in position be drawn too tight, and drainage tubes should be avoided. The gut stitches should be prepared to resist tissue action for three weeks, and four or five should pass through the ligament, binding the external oblique tendon to the subjacent structures. Two light long splints should be applied, extending from the armpits to the feet, to keep the patient from tearing the stitches by sitting up or bending the thighs upon the body; and the prone position should be rigidly maintained for four or six weeks according to the thickness of the ligaments.

Lastly, iodoform and wood-wool dressing will be found to give the most satisfactory results.

I shall now shortly describe a few cases that have recently come under my care:—

Mrs. M'N., æt. 27, housewife, admitted 28th March, 1893. Three years married, but has no family. Menstruation has been regular since she was 13 years old. Shortly after marriage she commenced to feel pains, especially at left groin, and suffers from profuse leucorrhœal discharge. She complains of pain during defæcation, and her strength has become greatly reduced. She has worn many pessaries, of diverse shapes, and inserted by competent gynæcologists.

Local Examination.—Uterus is lying low down in vagina, and is completely retroflexed. There is a profuse glairy discharge from os, which is puffy, and the os resembles a strawberry on its surface.

Operation.—On 3rd April, with aseptic precautions, the ligaments were exposed and drawn out. The vagina, after free douching, had a watch-spring pessary inserted. Considerable difficulty was encountered in finding and drawing out the right cord. On 7th April the wounds were dressed and the tubes removed. Patient was kept in bed for a month, when she was dismissed on 10th May with uterus in its proper position.

At end of six months the pessary was removed, and the uterus is at this date slightly anteflexed; while the leucorrhœa, pain on defæcation, and bad health have completely disappeared.

Mrs. M., æt. 33, housewife, consulted me on 3rd March, 1893, for complete prolapse of uterus of several years' duration. She has had three children, but latterly her general health has been wretched in the extreme, while the lack of control over the bladder prevents her entering into any society.

On 3rd March, 1893, in Miss M'Alpine's Home, assisted by Dr. M'Gregor, I drew out the two ligaments, and found the right to be very strong and thick in consistence. The left wound did not heal aseptically, but she went home in a month wearing a support. Prior to operation no support kept the uterus in vagina, and an outside pessary caused so much pain that it could not be tolerated.

After operation a large watch-spring pessary sufficed to keep uterus in position, and this was worn for a year.

At present date the uterus remains in vagina without support, and her local and general state is vastly improved. She has complete power over bladder, and leucorrhœa is only slightly present.

Mrs. H. G., æt. 27, housewife, admitted to Ward 24 of the Glasgow Royal Infirmary on 31st January, 1893, with prolapsus uteri of two and a half years' duration. The organ projected 2 inches beyond vulva while in recumbent position. Has been three years married, and has had two children. The uterus came down after the first, and has remained down ever since. Has no perineal rupture, but is troubled with menorrhagia.

On 7th February both ligaments were easily found and drawn out, but a septic catgut ligature caused the wound to gape and heal by granulation. She was sent home wearing pessary on 11th March, and has been since seen at intervals. In this case the patient cannot do without a support, as the uterus threatens to descend. The cause is probably due to the septic wounds preventing firm adhesion of the ligaments to the point of fixture.

Mrs. P., æt. 40, admitted 16th November, 1893. Has almost complete prolapse with attendant symptoms of profuse vaginal discharge and loss of power over bladder. Both ligaments were drawn out and the wound remained aseptic. Was dismissed on 5th January wearing support, but merely to prevent strain on the ligaments. Six months later the pessary was removed, and at beginning of this year the os was two inches inside the vulva when patient was in erect posture. Has gone abroad.

Jane G., æt. 30, shop-girl, admitted 5th June, 1895. Had a child three years prior to admission, and since then has been frequently unable to work. Suffers from profuse leucorrhœal discharge, with menorrhagia, dragging pains in groin and back, and hæmorrhoids. The uterus is soft, enlarged, retroflexed, and there is great ovarian tenderness. The ligaments were drawn out on 5th June, and she was sent home on 23rd July with the wound healed aseptically, and wearing a ring pessary. At this date the uterus is slightly anteflexed, but the pelvic viscera are otherwise healthy. She has altered regularly, and the hæmorrhoids have disappeared.

Mrs. G., æt. 32, housewife, admitted 15th June, 1895, suffering from prolapse of womb of eight months' duration. The prolapse came on immediately after birth of second child, and the cervix projected about 2 inches beyond vulva while patient stood erect. On 22nd June the ligaments were drawn out, and she went home on 23rd August, 1895, with the wound aseptically healed. I examined her a week ago, and found the uterus reduced to half its former size, and lying high up in vaginal passage. She has made an excellent recovery.

Mrs. M'K., æt. 27, admitted 18th November, 1895, with retroflexion and prolapse of uterus (partial), of several years' duration.

Operation, 26th November, by semilunar incision. The ligaments were drawn out 3 inches, and the left ligament stitched backwards to anterior superior spinous process. Wound dressed 16th December, and ring pessary removed and reintroduced.

4th January.—Examination shows uterus to be in good position, and os high up in vaginal passage. Leucorrhœa, backache, and dragging pains have disappeared, and her general health has become much improved.

Dr. Balfour Marshall, in considering the operation of shortening the round ligaments for the treatment of prolapsus uteri, said he would like to know the later after-histories of the case to judge of its true value. He does not think it a good method of treatment. In the unimpregnated uterus the round ligaments are of little or no use in preventing prolapse, although at full time labour they play a most important part in preventing excessive elevation of the fundus uteri, thus avoiding excessive stretching of the lower uterine segment.

The utero-sacral folds are the most important ligaments, as in the erect posture they suspend the uterus, passing as they do from near the isthmus upward to the second sacral vertebra. Prolapse is to be regarded as a hernia, or, as Dr. Berry Hart puts it, a displacement downwards of the entire displaceable portion of the pelvic floor past the entire fixed portion—*i.e.*, of those tissues lying in front of the anterior rectal wall as far as, and including, the lower part of the bladder. Treatment should, therefore, aim at giving support from below, and if operation is indicated the best means is by a colpoperineorrhaphy, combined with if necessary a colporrhaphy anterior. If certain of these cases should afterwards require it, a small pessary could be worn and retained, when previously no instrument may have been able to prevent the prolapse from coming down. Dr. Adams's cases show that a pessary is required for months after his operation is done, which still further reduces any value his operation has. Dr. Adams's operation is, however, more justifiable for replacing movable retroflexions requiring operation to retain them in antiflexion.

The symptoms mentioned in Dr. Adams's cases pointed to endometritis and endocervicitis, and treatment of these combined with rest in bed might have cured the condition. Dr. Balfour Marshall quoted cases where marked retroflexion was present and yet caused no symptoms whatever, and other cases where the cure of the endometritis and endocervicitis by curretting and suitable after-treatment with rest in bed had led to cure of symptoms and even to a spontaneous reposition of the uterus to a position of anteflexion, especially after the enlarged uterus had become reduced in size.

He thought that other methods of treatment should first be thoroughly tried in cases of retroflexion, before resorting to such an operation as shortening of the round ligaments, even although it was free from risk.

Dr. Munro Kerr asked if a ring pessary was always the form used by Dr. Adams, and was answered in the affirmative. He also asked Dr. Balfour Marshall how the diagnosis of retroflexion of the uterus was made if retroflexion could exist without symptoms, to which Dr. Marshall replied by quoting a recent case where the patient, having complained of pain in the vulva, an examination revealed abrasion of the labium majus and a retroflexed uterus, without any symptom of the latter condition.

Dr. W. L. Reid said the results of the operation were of a mixed character. One patient left the hospital with a double hernia and a cellulitic deposit; she caught cold and developed acute bronchitis, and the constant coughing tore the ligaments away from their moorings. In 5 cases out of 8 the operation is successful as regards restoring the uterus both in prolapse and retroflexion. If the case cannot be treated with pessaries, shortening of the round ligament is an operation to consider. In patients not able to rest and wear a pessary the operation may fail, as the scar tissue is not firm, and a pessary is required to keep the uterus in place for a time.

Dr. Adams thanked the members for patiently hearing him, and for the criticisms offered.

III.—SLOUGHING OF THE BLADDER AFTER PROTRACTED LABOUR.

By Dr. Oliphant.

A detailed account of the symptoms that characterised the sloughing of the bladder was read from the case-book, and a brief account was given of Dr. Sutherland's examination of the pathological specimen, which indicated necrosis of the wall of the bladder.

IV.—LIVER WITH ABNORMALLY SMALL LEFT LOBE.

By Dr. T. K. Monro.

This was taken from a man aged 50, a labourer, who died of phthisis. The organ weighed 50 oz. when fresh, and its tissue was practically healthy in appearance. The following are some of the measurements (in the fresh state):—

Whole liver, antero-posteriorly, . .	6¾	inches.
Whole liver, transversely, ...	9	,,
Left lobe, antero-posteriorly, . .	2¼	,,
Left lobe, antero-posteriorly (including some smaller masses of hepatic tissue),	3⅜	,,
Left lobe, transversely, . . .	1½	,,
Right lobe, transversely, . . .	7½	,,

V.—SECTION OF A HARD FIBROMA FROM THE EAR OF A HEN.

By Dr. T. K. Monro.

Clinically and histologically, its characters are those of a fibroma.

VI.—ECTOPY OF LIVER, OMENTUM, AND BLADDER.

By Dr. George Bell Todd.

The child was born on the 6th July, lived fifteen days, and died on the 21st July, 1894.

The photograph shown represents the *post-mortem* appearances twenty-four hours after death. The position of the liver and omentum is well shown; also the interior of bladder, in the floor of which indications of the valve-like openings of the ureters can be seen. The sloughs on omentum and surface of liver show lightish-grey in colour, as also patches of slough on the edges of the abdominal cleft.

On flicking the exposed mesentery with a camel-hair pencil moistened with castor oil, evacuation of the child's bowels took place in from five to seven minutes afterwards. In every instance the motions were fluid, and yellowish-green in colour. This instance in the human being confirms the experiments carried on by Rutherford on the lower animals—viz., stimulating the exposed mesentery with various active principles of cathartic remedies.

OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Session 1895-96.

Meeting II.—27th November, 1895.

The President, Dr. G. A. Turner, *in the Chair.*

I.—EXHIBITION OF INSTRUMENTS, ETC.

Prof. Murdoch Cameron showed a set of ten dilators intended for rapid dilatation of the uterine canal. The dilators are graduated—the first from 3 to 5 millimetres, the second from

4 to 6, the third from 5 to 7, and so on. They are used in rotation, either with or without the vulsellum as may be thought necessary. In length they resemble the uterine sound, and can be easily introduced or manipulated. A groove at 2½ in. indicates the normal depth of the uterus.

He also showed a handled needle with large curve, and with the same kind of point as Hagedorn uses in his needles, which he believed would be very suitable for suture either of the abdominal wall or of the perineum.

Dr. Balfour Marshall showed hypodermic tabloids of ergotin.

II.—CYSTIC DISEASES OF THE UTERINE APPENDAGES.

By Dr. Beatson.

Dr. Beatson read a paper on the above subject, in which he described in detail their development and pathology, and then gave his experience of upwards of fifty completed operations. He showed specimens from his museum illustrating the various kinds of cases.

III.—CASE OF LAPAROTOMY FOR DISEASED APPENDAGES.

By Dr. G. Balfour Marshall.

Mrs. D., aged 30, ten years married, consulted me last summer, complaining of pain in the side and a constant desire to micturate.

The following is the history of the case as then taken:—She first menstruated at 18, the amount being moderate, lasting for three or four days, and appearing every four weeks. She has had three children, all three labours being forceps cases. Her fourth and last pregnancy was five years ago, and ended in a miscarriage at the fifth month.

Her illness dates from this miscarriage of five years ago, following on which she was laid up for three months with symptoms evidently pointing to pelvic inflammation. Since then she has always suffered more or less from pain in the side, this being aggravated at each menstrual period. The menses became increased in quantity, and latterly there has been marked menorrhagia, the menstrual periods lasting over a week, and the discharge containing blood clots. This is accompanied by dysmenorrhœa, characterised as a bearing-down pain, as well as an aggravation of the pain in the side. There is also more or less leucorrhœa during the intermenstrual period.

Latterly there has been dyspareunia, coitus being followed by pain in both sides, but more especially severe in the left.

An interesting point is that during this illness the patient has usually suffered from severe migraine at the onset of each menstrual period, the severe headache and bilious vomiting lasting for a whole day. Twelve months ago she began to experience an increased frequency of desire to micturate, and this has gradually got worse till latterly she has been unable to retain urine longer than half an hour. Examination showed that the urine passed was quite normal.

Physical Examination.—Percussion and palpation of the abdomen gave negative results.

Per vaginam the cervix is found displaced anteriorly and to the left, while there is a sense of resistance on pressing deeply in the right posterior fornix.

Bimanual.—The uterus is enlarged and of firm consistence, and is markedly sensitive to bimanual pressure, especially towards the fundus. It lies anteverted, but is displaced anteriorly and to the left by a tumour, which, forcing it against the bladder, evidently prevents normal distension of that viscus, and thus accounts for the symptom of frequent micturition. The uterine sound passes 3½ in., causing pain on passing the os internum, and again on touching the fundus uteri, and is blood-stained on withdrawal. No unusual roughening of the uterine mucosa can be detected.

Behind and to the right, in the region of the right lateral pouch of Douglas, there is a small orange-sized, tense, rounded, fluctuating tumour displacing the uterus to the front and left, and it is sensitive to pressure. It is adherent to the pelvic wall and back of uterus, its lateral and forward movements being limited, although there is a considerable range of movement upwards towards the abdomen if the uterus is at the same time elevated. No right ovary can be felt. The left ovary is enlarged, very tender to pressure, and is adherent to the pelvic wall and uterus. No distinct thickening of the left tube can be made out.

Diagnosis.—Endometritis and diseased appendages. The diagnosis lay between an ovarian tumour and cystic tubal disease; but, from its very rounded shape and position in the lateral pouch of Douglas, I inclined to the opinion that it was an adherent cystoma, although the history of the case was more in favour of the tubal lesion. An accurate diagnosis was further difficult from the fact that, owing to the close adhesion of the cystic tube to the back of the uterus, and from its being bent round on itself, it quite lost that character so often noticed—viz., somewhat pear-shaped, with a piece of thickened tube passing between its narrower end and the uterus. The abdominal wall was, further, somewhat thick, rendering palpation difficult.

Treatment.—The endometritis was first treated, and on 4th May last I dilated and curetted the uterus, this being followed six days later by intra-uterine injections of tincture of iodine at intervals of three days, six in all being given.

Microscopic examination of the curetted mucosa showed endometritis glandularis interstitialis. To support the uterus and tumour an Albert Smith pessary was placed in the vagina, and this proved effectual in causing the bladder symptoms to entirely disappear. As the pain in both sides continued more or less severe, and there was great dyspareunia, the patient consented to operation; so on 18th June I performed abdominal section, Dr. Jardine kindly assisting me.

The round tumour proved to be a cystically dilated tube, with the right ovary firmly adherent to it. It was covered with numerous broad vascular adhesions, fixing it to the uterus, pelvic wall, and cæcum. As the intestine and dilated tube were closely adherent, the separation of the adhesions at this part proved somewhat troublesome. A point of greater difficulty was the fact that the veins of the broad ligament below the hydrosalpinx were enormously dilated to look like sinuses, and to avoid these the ligature had to be kept so close to the tumour that the pedicle was rather short after the adnexa on this side were cut away. The adnexa on the left side were next removed, as the left tube showed commencing hydrosalpinx, and was, with its ovary, adherent to uterus, pelvic wall, and sigmoid flexure.

On examining the pedicle on the right side, it was now found to have torn and partly slipped from the outer half of the double ligature, while blood was slowly oozing from it. An attempt to pass a fresh ligature through the broad ligament below the other one could not be made owing to the large dilated veins, which also extended too far down to permit of a needle being safely passed below them. The new ligature was accordingly passed through the broad ligament close to the uterus; and, while the ligament was pulled up by catch forceps, the whole free border was included in one suture, the pedicle thus formed containing some of the large veins.

After Treatment.—A glass drainage-tube was placed in the abdomen, but removed in forty-three hours, the amount of serum withdrawn being small. The stitches were removed on the eleventh day, the patient doing very well. As frequently seen, she menstruated from the third to the eighth day, the amount and character of the discharge being that of a normal period. Since then, however, the menstrual functions have entirely ceased.

Since operation the migraine attacks have quite disappeared. Is their absence or cure to be ascribed to the removal of diseased appendages which were adherent to cæcum and sigmoid flexure? or, since they were usually coincident with the menstrual periods, may the cause be looked for in the absence of the menstrual functions following on the establishment of an artificial menopause?

Prof. Murdoch Cameron and Drs. W. L. Reid and Sloan took part in the discussion of the papers. All agreed with Dr. Beatson in his condemnation of the removal of the appendages for the relief of purely nervous symptoms. Dr. Reid made an exception in one class of cases where there was an absence of the uterus. Dr. Sloan referred to the test of pain in such cases—viz., whether it kept the patient from sleeping, and recommended puncture of the ovary and application of the cautery point in cases where only small cysts were found. In Dr. Marshall's case, the menstrual discharge in the first or second week after operation which he had noted was, in Dr. Reid's and Dr. Beatson's experience, a frequent occurrence.

MEETING III.—22ND JANUARY, 1896.

The President, DR. G. A. TURNER, *in the Chair.*

I.—SPECIMENS OF TUBO-OVARIAN DISEASE, ETC.

BY PROF. MURDOCH CAMERON.

Prof. Murdoch Cameron showed fresh specimens of tubo-ovarian disease, and of a uterus which had been removed *per vaginam* for carcinoma.

II.—RUPTURE OF THE UTERUS, WITH A RECENT CASE IN A MULTIPARA.

BY PROF. MURDOCH CAMERON.

It was her seventh pregnancy and a breech presentation, and the after-coming head, which was hydrocephalic, was only extracted after considerable effort. When the hand was passed in to remove the placenta, the uterus was found to be ruptured, and the placenta lying among the intestines in the abdominal cavity. The patient was at once removed to the Maternity Hospital, where he examined her, and at once performed abdominal section. The tear was found to be longitudinal on the right posteriorly, and about 5 inches long. It was carefully stitched up with chromicised catgut, and the abdominal wound was afterwards closed in the usual way. Sponge pressure was used to arrest bleeding. For three days symptoms were favourable, but subsequently symptoms of septic disturbance set in, and death resulted within a week after operation. Prof. Cameron, notwithstanding this result, felt convinced that immediate operation in such cases would give the best chance of recovery. At the same time he advised certain precautions, by attention to which the risk of such an accident would be lessened. In the discussion of the case,

Dr. Lindsay said that he had attended the immediately preceding confinement of this patient, having been summoned by a midwife on account of prolapse of the cord. He found the pelvis contracted, the head freely movable above the brim, and the lower segment of the uterus greatly thinned and elongated, so that it contained the head and shoulders of the child. He considered this thinning would be more pronounced in the succeeding labour, and would constitute a predisposition to rupture.

Dr. Cowan Lees said he had been sent for to attend at this confinement, but rupture had occurred before his arrival. He confirmed the description of the case.

Dr. Balfour Marshall said that this was the only case of which he knew where rupture had occurred in a breech presentation. He did not accept predisposition as an explanation, but thought rupture might be due to traction, even if it were not very violent.

Dr. Munro Kerr favoured Dr. Lindsay's suggestion as to predisposition, and quoted, in favour of his contention, Bandl, and also Braun in his latest monograph.

Dr. Samuel Sloan said this was evidently not a case of pelvic deformity, but was due to tugging on a retracting uterus. He referred to the diagnostic sign observed in hydrocephalic heads, the feeling of a bag of bones when the hand is introduced, and suggested the use of the perforator in such a case.

Drs. George Marshall, Gunn, and Howie also took part in the discussion.

III.—A CASE OF RETROVERSION OF A GRAVID UTERUS.

BY PROF. MURDOCH CAMERON.

The patient had been about three months pregnant when she first experienced interference with her micturition, and thereafter the abdomen became enlarged. This swelling persisted, and urine was passed with difficulty, and in small quantity. Several weeks later the catheter was used for the first time, and 80 oz. of urine were drawn off, reducing the abdominal swelling. Next day urine was again drawn off, and blood in considerable quantity was first observed, and continued to be present thereafter. A week later, owing to more severe pain and more serious symptoms, Prof. Cameron was called in consultation, and, as a result, the patient was removed to the Western Infirmary. The swelling at this time reached almost to the xiphoid cartilage, was dull to percussion except at extreme sides, of doughy consistency, and non-fluctuant. The bladder was several times irrigated, and numerous blood-clots were washed out, and on one occasion a long blood-cast, about 15 inches in length, and as thick as a quill, was expelled. A section of this, examined under the microscope, showed that coagulation had taken place comparatively slowly, the red corpuscles being most numerous in the centre, and the leucocytes at the periphery. Prof. Cameron performed abdominal section on the following day. The peritoneal cavity was only reached after extending the incision above the umbilicus. To empty the bladder, the anterior wall was opened extra-peritoneally. The bladder thereupon contracted like a uterus, showing the walls to be hypertrophied. The uterus and left Fallopian tube were reached, but the right tube was imprisoned with the body of the impacted uterus. With the assistance of a hand in the vagina pressing upwards, the uterus was disengaged at the brim, but with great difficulty. The bladder incision was sutured with fine silk, and the abdominal incision afterwards with silkworm gut. Progress was uninterrupted. Within a week all trace of blood in the urine had disappeared. Three weeks after operation fœtal movements were felt, and a week later the fœtal heart was heard.

Prof. Cameron concluded with the following remarks on the case:—"The history of this case clearly shows the necessity for careful examination, as the physician too frequently attributes all the suffering to the fact of pregnancy existing. Frequently the retention of urine calls for relief, and then the displacement may be detected. Denman blamed a distended bladder for retroversion; perhaps he would have been nearer the truth had he put the retention of urine down as resulting from displacement.

"Independently of pregnancy, retroversion and retroflexion are very common, especially in women who have borne children. Should pregnancy supervene, the uterus may continue to develop until it becomes locked in the true pelvis. Again, the retroversion may result from some adhesions behind preventing the ascent of the fundus, or even suddenly from some exertion or fall whilst the bladder is distended. The organ being thrown back, the intestines pressing upon the anterior wall of the uterus will tend to keep it displaced. When locked in the true pelvis, tenesmus is set up with painful defæcation. Cases have been described where the upper wall of the uterus went on distending till it formed a large swelling on the abdomen, and eventually dragged the fundus out of the cavity. Merriman recorded two cases in which a portion of the posterior wall with fœtal head remained locked in the pelvic cavity whilst the other portion with the body was in the abdomen, the os being high up behind the pubes. Heckar also described a case in a multipara, who suffered from dysuria with abortive pain. During labour the posterior wall was found distended, and the os high up behind the symphysis. Rupture was dreaded, but the swelling in the pelvis passed upwards, and the cervix regained its normal position. This case terminated naturally. Oldham observed a like case in a primipara at term. He succeeded in pulling down the cervix, whilst he effected replacement of the distended posterior wall. The result following these displacements, when left alone, is generally abortion, or, as in a few cases, serious sloughing of the parts. In a few cases reported, peritonitis followed replacement, but if replacement is effected early under chloroform, after emptying the bladder and bowels, good results usually follow. Blundell related a case in a young lady who had suffered from an ovarian cyst, which burst from a fall. Peritonitis resulted, but she recovered, and afterwards married. She died from an impacted displacement with pregnancy. I have frequently reduced such cases under chloroform, although they had resisted frequent attempts at reduction without it. The serious complication in the present case was the bleeding, a result which usually follows the sudden relief of an excessively distended bladder. In such conditions the bladder should be slowly emptied, or a quantity of boracic solution injected.

An interesting feature is the blood-cast of the ureter, which, I understand, is quite unique. In fact, I am unaware of a similar case, and shall be pleased to have the remarks of the Fellows either upon the case itself, or any theory they may have as to the origin of the blood-clot in the ureter."

Drs. Samuel Sloan, George Marshall, Kerr, Miller, Gunn, and the President took part in the subsequent discussion of the case.

REVIEWS.

The Structure of Man: an Index to his Past History. By Dr. R. Wiedersheim, Professor in the University of Freiburg; translated by H. and M. Bernard; the translation edited, and a preface written, by G. B. Howes, F.L.S. London: Macmillan & Co. 1895.

The preface to this book states that "it is largely supplementary to the classical treatises of Darwin and Huxley, quoted in its pages." It also states that "it is desirable to place in the hands of the student engaged upon a first investigation of individual types of structure some sound treatise of a general character which he may read while continuing his more systematic studies. The editor also hopes that an educated public exists to whom a knowledge of the comparative morphology of man and the anthropoid apes may be acceptable," and he also distinctly states that this volume is "in no sense an exhaustive treatise."

This book, we think, admirably realises the aim expressed in the above quotations from the preface, and both for the scientific reader and the educated public affords much interesting information and food for careful reflection. Taking evolution as its keynote, an interesting account of the structure of man, not only from an embryonic point of view, but also in his relationships to ancestral forms, and in his ontogenous and phylogenous development is given.

Beginning with the integument and tegumentary organs, an interesting account of the fœtal hairs and hair tracts is given, reference being made to the radial arrangement at the navel and vertex coccygeus. Pseudo-hypertrychosis is dealt with, and the post-embryonic persistence of the woolly covering or lanugo. Several very good drawings of hairy men and orangs illustrate this portion. Under the heading of tegumentary organs, the nails and mammary glands are dealt with, considerable attention being paid to the development of the mammary glands and also to polymastia, several interesting cases being cited and illustrations and references given.

As might be expected in a book which is devoted to proving the relationship of man to the anthropoid apes and lower ancestral forms, the subject of man's "tail" claims attention. Most of the proof seems derived, as is to be expected, from embryonic evidence, but a summary of the purely anatomical facts which indicate that man's ancestors possessed a tail is given, and references are given to authentic cases—the tailed child Moi, with his pseudo tail of 12 inches, which, however, had no skeletal elements, being referred to and pictured.

The skeleton is also described in considerable detail, the evolutionary differences in man as compared with other mammalia being illustrated by numerous interesting anatomical data. The throwing forward of the pelvic girdle, with the shortening and flattening of the thoracic cavity during the man's upright attitude, gives the author an opportunity for interesting speculation regarding pathological conditions in the thorax and the spinal cord. The other parts of the book are not less interesting, and considering the excellence of the illustrations, and also of the translation, the book is cheap at the moderate price at which it is published.

A glossary of technical zoological terms, and a schematic list of the organs and topics considered in the text, classified according to the systems to which they relate, render great assistance to the general reader in his perusal of this work, and form an excellent feature of the work.

The translation, on the whole, is excellent, being as it is the work of an enthusiastic scientist and his wife. Any fault it has is on the side of being too technical.

The Evolution of the Diseases of Women. By W. BALLS-HEADLEY, M.A., M.D. Cantab., F.R.C.P. Lond. London: Smith, Elder & Co.

"EVOLUTION is the mode of progress of the world." This is laid down as an axiom by the author in the first sentence of his preface. He goes on to state that the plan of the book is "to show the states of the sexual relations as they have evolved in the human race, and the position at which they have now arrived, with their causations and influences on woman; and to trace these influences through their progressive stages, so far as they have tended in the direction of disease. Also to indicate the mode of prevention of such causes of disease, and of such disease, not only in the social, but also in the medical, aspect."

Three great causes are discussed as having been instrumental in evolving the diseases of women—mental culture, mode of dress, and the influence of "deficient or delayed marriage." "The selection of the fittest has resulted in a race of women of such extraordinary physical growth and beauty as has probably never before existed, but whose sexual growth is liable to be so affected by mental culture, mode of dress, and delayed or non-marriage, that never before were uterine abnormalities of development, disease, and difficulty in parturition so prevalent. How strange, absurd, and sad to find a fine, apparently perfect, woman with a little feeble uterus, incapable of impregnation without an operation; and that one out of nine in hospitals, and a larger percentage among the upper classes, cannot produce her child without the aid of forceps; and many more not without lacerations, misplacements, and evolving disease. While the developing brain of man is probably increasing the size of the head in birth, the normal capability of parturition of women is decreasing."

These extracts will serve to show the tenor of the author's views. The book is well worthy of a careful perusal, and we cordially recommend it as containing much original and suggestive matter, a great deal of which is true and important.

But Dr. Balls-Headley, in many instance, allows his theories to carry him too far—further than most will be willing to to follow him. One principal factor in many unhealthy conditions, according to him, is unsatisfied sexual desire. "The sense of appetite or taste for food or fluids is identical with that of the sexual appetite. . . . Both are normal appetites, and demand satisfaction; when food or the spermatozoon is not supplied, the body suffers." At least half our women are, by the necessities of our social system, debarred from the production of the next generation during the first half of their sexual life, and we have "resulting evolutionary diseases."

Now, in opposition to this, the generally accepted view is that most healthy British girls scarcely know what sexual desire is, and surely it is unjust to them, erroneous in fact, and misleading to the profession, to teach the theory to which we have referred.

The first two chapters are "on the relation of the sexes," and "the influences of civilisation on the sexual relations and on women." The bulk of the volume is occupied with the consideration, in detail, of the "evolutionary diseases of woman," and a final chapter enters pretty fully into the question of treatment. It is well got up, and the illustrations, of which there are many, are exceedingly well done.

On Dreamy Mental States. The Cavendish Lecture, delivered before the West London Medico-Chirurgical Society, on Thursday, 20th June, 1895. By SIR JAMES CRICHTON-BROWNE, M.D., LL.D., F.R.S. London: Baillière, Tindall & Cox. 1895.

THIS is an admirable essay on a peculiarly fascinating subject of which our knowledge is as yet only too meagre. As the lecturer points out, and proves by numerous quotations, the poetic and prose writings of the most talented writers (Scott, Dickens, Rossetti, Dowden, Wordsworth, Coleridge, Lowell, Patmore) contain abundant evidence that their authors have had personal experience of dreamy mental states. Indeed, when such gifted men begin to discuss these peculiar mental conditions, they assume that they are a matter of experience with every one. Thus, Dickens says we have all had them, and Hardy remarks that "everybody is familiar with those strange sensations we sometimes have, that our life for the moment exists in duplicate, that we have lived through that moment before or shall again." But this notion is probably erroneous, and it is much more likely that whilst dreamy states are frequent among the neurotic and the well educated classes of the community, they are uncommon or rare among the unlettered, dull, and stolid masses of the people.

The simplest form of the dreamy mental state is an impression which suddenly takes possession of the mind "that the passing moment of life has been once lived before, or must be once lived again—that surrounding objects have been seen once before exactly in the relations in which they at the instant present themselves." Even in their slightest form, dreamy states cannot be considered normal. This is evidenced by the conditions under which they occur, and by their kinship to admittedly morbid states. The disorder in the dreamy state may be trifling and transient, but yet exists, and is characterised by a negative element in the loss of control of the highest centres with degradation of the power of attention, and by a positive element in the raised activity of lower centres with exaltation of subject consciousness.

An "intellectual aura" is a dreamy state which ushers in an epileptic seizure. The author believes that this kind of aura is much more frequent than is generally supposed, but is denied by patients because they do not recollect its occurrence. The dreamy states that occur apart from epilepsy are often colourless or agreeable, and these are comparatively harmless in their results, but some are associated with emotions of a dreadful character. Many cases have been observed in which dreamy mental states associated with fear have ultimately passed over into epilepsy, and the author considers that the outlook is especially ominous if the dreamy state is associated with visceral sensations (dyspnœa, palpitation, &c.) or with muscular spasms.

Insanity, without the intervention of epilepsy, may supervene in those who suffer greatly from dreamy states. Still another evidence that the latter are abnormal is that they occur in persons of a neurotic tendency, or in normal persons almost only in impaired general health or in states of exhaustion. The author records at length a remarkable instance in which a family produced sufferers from this condition in four generations. The lessons drawn from this history are of great importance, but we shall only allude to one of them. In three of the cases belonging to this family—all right-handed persons—there were modifications of sensation and movement in the left arm, indicating that, along with dreamy states, there was special involvement of the right cerebral hemisphere, thus supporting Hughlings Jackson's theory as to the right hemisphere being the more subjective of the two.

The author discusses in some detail the thoughts that arise during nitrous oxide anæsthesia, a condition which he considers to be somewhat analogous to the dreamy mental state. The dreamy state has had applied to it such contrary designations as "a sense of prescience" and "a sense of reminiscence." The author thinks that what used to be known in Scotland as "second sight" was sometimes only a dreamy state with a prescient intention.

Like their congener, epilepsy, dreamy mental states may persist through life without obvious harm to mind or body. Epilepsy is the more formidable of the two conditions; yet witness the cases of Julius Cæsar, Mahommed, Marlborough, Napoleon, Wellington, Molière, Sheridan, Balzac, Flaubert, and Dostoieffsky, who were all epileptic. These men escaped the mental deterioration which, nevertheless, we look upon as the natural outcome of epilepsy. We shall, therefore, be prepared to find a large proportion of sufferers from the less serious dreamy mental states escape permanent mental enfeeblement. This, however, is not always so, and the author quotes the case of John A. Symonds, the historian, whose life has been described as "a great spiritual tragedy," to show how the highest nerve-centres may become enfeebled by dreamy mental states in their more aggravated forms.

The author concludes with some wise words on the detection and treatment of dreamy mental states. His advice deserves the attention of all medical practitioners. But the whole essay, which is easily followed, is worthy of study by all who are interested in medicine, psychology, or education.

Recherches Cliniques et Thérapeutiques sur l'Epilepsie, l'Hystérie, et l'Idiotie. Compte-rendu du Service des Enfants idiots, épileptiques et arrières de Bicêtre pendant l'année 1894. Par BOURNEVILLE. Vol. XV. Avec 8 figures dans le texte, et 4 planches. ("Clinical and Therapeutic Researches on Epilepsy, Hysteria, and Idiocy. Report on the Administration of the Bicêtre Hospice for Idiot, Epileptic, and Backward Children during the year 1894. By BOURNEVILLE. Vol. XV. With 8 figures in the text, and 4 plates.") Paris: 1895.

THIS interesting volume consists of three parts, which differ considerably from one another in their scope and aims. Anyone who will be satisfied with a mere notion of the contents will find what he wants in the table at the end of the volume, but the report is worthy of study in a much more exhaustive manner.

The first part is the annual report proper of the Bicêtre, and of a kindred institution—the Fondation Vallée. There are here given not only statistics as to the numbers and changes among the inmates of these establishments, but also details as to the way in which they are cared for and educated. It is interesting to note that some idiots acquire the curious practice of rumination (merycism). "A peine ont-ils terminé leurs repas, qu'ils font remonter dans la bouche les aliments déjà avalés, comme pour les soumettre de nouveau à une plus complète mastication." M. Bourneville considers that merycism, at least in such cases as he has observed, is to be looked upon at the outset as a bad habit. It shows itself at first when the idiot is left alone, and when he has just eaten of some dish which he particularly enjoys. If, however, the habit is allowed to take root, rumination will go on the whole day, even while the child's attention is distracted. It is therefore necessary to attend to it at the very outset by distracting the attention to other things, by fatigue, and perhaps by withdrawing from the dietary for a time the favourite dish. Thus, in the case of one girl, the deprivation of Roquefort cheese and of chestnuts led to the disappearance of merycism except at long intervals (p. xliv).

The second part of this volume is rather curious. Charges were brought against M. Bourneville of having regularly employed at the Bicêtre methods of examining weak-minded children which involved the grave risk of teaching them certain most pernicious practices; indeed, it was alleged that this institution, far from being a place where such unfortunate creatures received benefit, was actually a manufactory for the mentally degenerate. The Municipal Council of Paris held an inquiry into the matter, and this investigation is here reported *in extenso.* The Council ultimately adopted, by a large majority, a resolution which recognised the lofty morality and righteousness of Dr. Bourneville, and characterised the accusations brought against him as unworthy calumnies. Partly by way of comment on this kind of thing, a Bicêtre case is recorded at length to show the great physical, intellectual, and moral improvement that may occur in idiots who are carefully treated. Numerous tables are published showing the points that have to be investigated, as a matter of routine, by the medical officers of the Bicêtre in their periodical examinations of the inmates, and the rules to be observed by the warders are also reproduced here.

The third part is clinical and pathological, and furnishes us with descriptions of cases which possess great interest for the neurologist. One of them is an example of myxœdematous idiocy in a girl, who died at the age of 22. The autopsy revealed complete absence of the thyroid and persistence of the anterior fontanelle. The length of the body was 3 feet. This part also contains some expressions of opinion on the subject of national asylums for the subjects of alcoholism, Then there are four good plates of brains, and, finally, there is the table of contents to which we have already alluded.

The elaborate and painstaking manner in which idiocy ought to be studied is well brought out in this report, and we have much pleasure in commending it to the attention of all who are interested in the subject of mental alienation.

A Manual of Physiology, with Practical Exercises. By G. N. STEWART, M.A., D.Sc., M.D. Edin., D.P.H. Camb. With numerous Illustrations, including Five Coloured Plates. London: Baillière, Tindall & Cox. 1895.

PROFESSOR STEWART is to be congratulated on having written a text-book on physiology which is certain to prove of very great value to teacher and student alike. In its preparation he has set before him the somewhat difficult task of combining systematic and practical instruction, of writing a book which may be of use to the student, both in his study and in the laboratory, where he is making himself acquainted with experimental methods. As he says himself, "an attempt has been made to interweave formal exposition with practical work." This he has accomplished by devoting a few pages at the end of each chapter to the description of practical exercises, which may be carried out in illustration of the processes and phenomena which have been described in the preceding paragraphs. We think that he has attained the object in view very successfully; and in this manual the student has, in moderate compass, a very reliable guide both to systematic and practical physiology.

Professor Stewart is the master of a fluent, graceful style, which enables his book to be read with ease and pleasure. The grouping of subjects is well done; the illustrations, which are numerous and well executed, have been carefully chosen; and an exhaustive alphabetical index, in which the practical exercises are indicated by leaded type, adds greatly to the value of the book, which we have no hesitation in cordially recommending.

Colour-Vision and Colour-Blindness: A Practical Manual for Railroad Surgeons. By J. ELLIS JENNINGS, M.D. Philadelphia: The F. A. Davis Co. 1896.

THIS is a book which is in the main carefully written, and which contains full instructions as to the methods of testing the colour-blind. It starts with the assumption that colour-blindness is in the highest degree dangerous in engine-drivers, and in those engaged in navigation. As is usual in such books, no attempt is made critically to prove the assumption. We notice also that the author accepts the Young-Helmholtz theory, or, at anyrate, the language of that theory, for he speaks of red-blindness and calls three colours primary. No colour is *per se* any more primary than another, and because three colours are found to make up white light they are not therefore fundamental. For that matter any two complementary colours make up white. The meaning which the author attaches to the phrase "primary colours" is lacking in precision.

On several occasions we have insisted that, unless accompanied by a defective light sense, colour-blindness is not dangerous. The book under review does not prove that it is; indeed, it almost conclusively proves the reverse, for amongst the mistakes made by the colour-blind, and enumerated by Dr. Jennings, we do not find a single instance of confusion of the signal red and green. The whole difficulty would be got over were we to give up theories and adhere to the fact that, so long as a man can absolutely distinguish the signal red from the signal green, and both of these from white, he is perfectly safe. There are cases of colour-blindness potentially dangerous; but when a man has navigated for, say, thirty years with perfect safety, it is the height of nonsense to dismiss him because he confuses reds with drabs.

It is perhaps a pity that the author has entirely neglected an account of the methods of testing the form sense. Such a description would perhaps have been as necessary for a railway surgeon as a description of the perimeter. The light sense does not receive any attention. There is no doubt that a defective light sense is, to a man engaged in navigating narrow waters, extremely dangerous; and it is possible that, to a less degree, it is an objectionable defect in a railway servant.

On the Localsation of the Foramina at the Base of the Skull. By EDWARD FAWCETT, M.B., C.M. Edin. Bristol: J. W. Arrowsmith.

THE purpose of this *brochure* is to classify the foramina of the cranial base in such a way as to render them more easy of mastery by the student. They are therefore arranged in five lines—one median or sagittal line, and two lateral lines on either side—the internal pterygoidean and external pterygoidean. Each external pterygoidean line, however, is bent in its course, so that it might be regarded as consisting in reality of two lines, which meet at an angle.

It looks like carrying specialism in anatomy to an extreme to publish a separate work on this subject, but we can nevertheless heartily recommend this little treatise to the struggling medical student.

A Guide to the Practical Examination of Urine, for the use of Physicians and Students. By JAMES TYSON, M.D. Ninth Edition. London: Baillière, Tindall & Cox. 1896.

WE have no hesitation in recommending this work to the notice of students and practitioners. It is a concise and well written compendium of the whole subject, and the fact that it has reached a ninth edition shows that it has well fulfilled the object which the author had in view. It contains little probably that will not be found in larger works, but the selection of subjects has been wisely made, and the various descriptions are clear and to the point. It will be most useful either in the hospital ward or the consulting room.

A Handbook of Leprosy. By S. P. IMPEY, M.D., M.C., late Chief and Medical Superintendent, Robben Island Leper and Lunatic Asylums, Cape Colony. London: J. & A. Churchill. 1896.

THIS book is valuable chiefly from the many photographic reproductions which it possesses. These are of almost uniform excellence. Of great excellence also is the statistical part of the book, and more especially the coloured map which shows the prevalence of leprosy in Cape Colony, as indicated by the admissions to the leper asylum at Robben Island since 1890.

When we come to the substance of the book, and more especially to that part of it which deals with the more intricate problems of pathology, we find it difficult to take the work seriously. The light and airy fashion in which the author speaks of the bacillus, as safe inside the leucocyte, coursing slowly through the lymphatic system and spaces of the body, does not impress the reader with confidence in the author as a guide in scientific medicine.

When we turn to the symptomatology, we expect to find the author on safer ground, and to some extent this expectation is justified. Even here, however, the crude pathology dominates the practical observation. He is not content with an account of the symptoms, but he must mix this up with the supposed doings of the bacilli and their products. It may be said, however, that this section, illustrated as it is by the excellent plates already referred to, is well worthy of perusal. We question, however, the wisdom of distinguishing a form of leprosy under the designation "syphilitic leprosy." It is more consistent with accuracy to speak of a mixed infection, and of the one form complicating the other.

There is one thing in this work to which we must take the most serious exception. Plate XI, illustrating Elephantiasis Arabum, struck us on glancing over the book as peculiar and yet familiar. It represents a man in a sitting posture with marked elephantiasis of both legs, but with a curiously arranged cloth spread between the legs which are somewhat apart. On looking up the back numbers of this *Journal* we find that this illustration is a reproduction of a photograph given in a paper by Dr. Geo. A. Turner on Amputation of the Scrotum for Elephantiasis Arabum (*Glasgow Medical Journal*, vol. xvii, p. 401). Our present author has covered up the massive scrotal tumour of the original, producing an effect which is more ingenious than elegant. We learn that this use of the photograph was entirely without Dr. Turner's knowledge and consent, and we must enter our protest against the discourtesy of such a procedure.

Hypnotism, Mesmerism, and the New Witchcraft. By ERNEST HART. A New Edition, Enlarged. With Twenty-four Illustrations. London: Smith, Elder & Co. 1896.

THOSE who have read and been impressed by Mr. Hart's trenchant papers in the *Nineteenth Century* and *British Medical Journal* on hypnotism and the quackery connected with it, will be glad to have this new edition of the collected essays. Mr. Hart's indictment is a heavy one, but most will agree that he has proved his charges up to the hilt. Our only objection to the present publication is that it is more diffuse than there was any need for—a good few things are repeated. To avoid this, however, the author would have required to rewrite his papers, and not merely reprint them.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

NERVOUS DISEASES AND INSANITY.

By Dr. R. S. STEWART.

Lesions of the Spinal Cord consecutive to Ligature of the Abdominal Aorta in the Rabbit. By Marinesco (*Le Progrès Médical*, 7th March, 1896).—Five or six hours after ligature of the aorta there is observed, in the cells of the anterior horns, a swelling and a disintegration of the chromatophile elements. The protoplasmic prolongations of the cylinder axis seem more voluminous. This process affects at first a limited portion of the periphery of the cell, finally reaching the whole contour. From this it results sometimes that the nerve cell is surrounded by a circular band of a more or less granular aspect, the nucleus remaining intact. The dissolution of the chromatophile elements ultimately gains the central part of the cell and affects the nucleus, and gives to the cell a reticulated aspect. The meshes of this network enlarge and give rise to vacuoles, and even to lacunæ and cavities. At this moment the achromatic substance, which the writer designates trophoplasm, is disintegrated, and there results from this rupture of the cell prolongations. Leucocytes invade the nerve cell and complete the work of destruction. These lesions are also found in the posterior cornu, and explain the complete analgesia which is observed in the animals experimented upon. In the white substance, disseminated lesions are observed in the antero-lateral and posterior columns in the lumbar region, but in the dorsal and cervical regions these are concentrated at the periphery of the antero-lateral columns only. The fact that the lesions of the posterior columns are limited to the columns of Goll is held to prove that these contain fibres which take their origin in the grey substance—are endogenous fibres.

Forty-four Cases of Fever in the Insane. By Keay (*Journal of Mental Science*, April, 1896).—Six of the cases recorded here were scarlet fever. In two of these (one, chronic mania, of 2½ years' duration, the other, dementia, of 20 years'), no change in the mental condition occurred. In another (chronic mania, of 1½ years' duration), slight permanent improvement took place. In the remaining three cases, very marked improvement resulted, leading on to complete recovery. Two of these were cases of chronic mania of 7 and 5 years' respectively, and the third was a recent case of acute mania.

Of the 38 typhoid cases, 15 died; in 6, benefit resulted, ending in recovery; 3 improved, and 14 were quite unaffected. Of the recovered cases, 3 were acute and recoverable; 2 were chronic mania of two years' duration, and the sixth was apparently a case of general paralysis.

The Relations of Alcoholic Indulgence to Insanity. By Bannister and Blumer (*American Journal of Insanity*, January, 1896).—These writers conclude that—(1) Alcoholic excesses produce insanity; (2) they are directly the cause of at least 10 or 12 per cent, and probably of a somewhat larger percentage—indirectly, they are among the causal factors of a very large proportion of cases that can not be directly credited to alcohol; and (3) moderate drinking is a very indefinite term, and this fact alone makes it impossible to utilise satisfactorily any statistics as to its effect in producing mental disease. There is, however, no reason to believe that moderate indulgence in alcohol is specially conducive to mental health in the average individual, and there is, on the other hand, a certain amount of physiological *à priori* presumption to the contrary. For the victim of hereditary taint, or the neurotic, it is undoubtedly often disastrous in its effects in this direction.

Paretic Dementia of Long Duration. By Worcester (*American Journal of Insanity*, January, 1896).—This is the case of a woman who first manifested delusions of poisoning and other symptoms of mental aberration at the age of 30. Signs of general paralysis, not previously recorded, were pronounced on her admission to the asylum at the age of 42, and the affection pursued a typical course, except as regards its duration, death taking place at the age of 56. In the writer's opinion, the history of the case does not favour the view that the case was one of general paralysis during the twelve years prior to her admission. He regards it as probable that the subject of another psychosis is as liable to develop the lesions and symptoms of general paralysis as one of previously sound mind, and that there is no good reason to believe that a simple insanity acts as an infallible prophylactic against this any more than against any other form of organic cerebral disease.

Changes in the Central Nervous System in Polyneuritis. By Soukanoff (*Archives de Neurologie*, March, 1896).—The pathological appearances presented in the case of multiple neuritis of alcoholic origin here described indicated an acute affection of the cord and medulla, an affection similar to that observed in the peripheral nerves in parenchymatous neuritis. The degeneration of nerve fibres invades principally the posterior columns and the anterior and posterior roots. In the lumbar region the morbid process attacks the postero-external portion of the posterior columns more than the postero-internal. In the dorsal region the posterior fasciculi are more equally altered, and in the cervical enlargement, and above, the columns of Goll and their upward continuation are most affected. The degeneration being most pronounced in the posterior roots in all the preparations, the lesion of the posterior columns is regarded as a continuation of the morbid process of the corresponding roots. The alteration of peripheral nerve apparatus, with the very marked changes of the cord and bulb as well as of parts situated higher, indicates that the affection called multiple neuritis is one which involves not only the peripheral nerves, but the whole nervous system—nerve cells as well as nerve fibres.

Blue Œdema. By Alekoff (*Archives de Neurologie*, May, 1896).—This condition was first described and named by Charcot in 1889. It occurs mostly in association with hysterical forms of paralysis, and is characterised by suddenness of onset and local lowering of temperature, which may even precede its appearance. Usually the œdema affects only a single limb, and it is always situated at its extremity. Its duration is variable—sometimes it persists for several years, sometimes it occurs periodically, and sometimes it can be made to disappear and reappear at will by hypnotism. The majority of authors agree that there is vascular spasm, but the writer thinks that the venous stagnation induced by the absence of muscular action due to paralysis plays an important part.

SURGERY.

By GRANT ANDREW, M.B., C.M.

A New Operation for Hypospadias.—In dealing with the subject of hypospadias, Weller Van Hook, of Chicago (*Annals of Surgery*, April, 1896), writes in support of the theory that hypospadias is due to an arrest of development, rather than to rupture of the tube already formed, and that, if the arrest in the developmental process takes place at the seventh or eighth week of intra-uterine life, the urethra is only completed as far as the perineum. Glandular (balanic) hypospadias implies a stopping of development as late as the fourth month (Reichel). The least serious forms are the most frequent.

The problem presented to the operator in a given case of hypospadias is arranged by the author thus—*A*. Anatomically: (1) To complete the urethral canal; (2) to straighten the penis, and release it from its moorings to the scrotum; (3) to properly adjust the skin upon the elevated penis by plastic methods. *B*. Physiologically: (1) To enable the patient to accomplish the generative act; (2) to make it possible to urinate without assuming a squatting position; (3) to favour the development of the organ by early establishment of its normal shape.

A summary of the various methods of dealing with the condition follows, assuming the deformity as penile. They are classified in the following order:—

1. The method of simple canalisation (Diffenbach).
2. That by denudation and suture (Diffenbach, Duplay).
3. By the use of penile flaps (Thiersch).
4. By taking flaps from the abdomen or scrotum (Bouisson, Moutet, Nélaton, Dolbeau).
5. By the combination of these fundamental methods.

In his first two cases, the writer employed Thiersch's method, that of penile flaps, but he was disappointed with the result in his second case, the penile flap sloughing. In a third case, a combination of the methods of canalisation, with flap formation, was tried. It is to this combination that the author wishes to draw particular attention, inasmuch as a new principle is involved. The case was one of penile hypospadias in an otherwise healthy child of fourteen months. The mother was advised that the operation would be done by a series of steps, and would last over a period of some months.

The first operation consisted in an endeavour to form a canal through the glans and body of the penis, and line it with a pedunculate flap of skin taken from the prepuce, side of penis, or scrotum. The flap in this case was taken from the prepuce. The foreskin was transfixed, and cut in a longitudinal direction on each side of a large blood-vessel, thus liberating a flap of skin, easily made into a canal by bringing the epithelial surfaces together over a roll of gauze. By a narrow cataract-knife, an opening was made in the penis from the apex of the glans to the end of the normal urethra, and through this opening was drawn the gauze-laden canalised flap, and secured. At the same sitting, the peno-scrotal angle was incised transversely, and transverse sutures were applied to straighten it; the opening of the normal urethra was also enlarged. The flap lived, but retracted considerably, so that, at the second operation, the defect had to be made good by a penile flap. This was successful. The next three sittings were devoted to joining the two parts of the urethra by the flap method; while this was in progress, the urine was deflected by a "perineal button-hole." At the end, the writer says: "That the penis presented an extremely good appearance, looking exactly like a normally developed organ, except for the absence of prepuce, the presence of scars, and the smallness of the organ."

The following advantages are claimed for the operation:—"(1) It is easy of execution, not requiring a large number of accurately introduced sutures; (2) the prospect of primary union of the tissues is increased by the fact that the blood-vessels of the flap are well preserved; (3) fistulæ are not likely to form; (4) the new urethra is well supported by the surrounding tissues."

Division of the Vas Deferens in Cases of Obstructive Prostatic Hypertrophy.—Reginald Harrison (*Lancet*, 22nd February, 1896), Guyon (*Rev. de Chir.*, March, 1896), and Helferich (*Medical Press and Circular*, 26th February, 1896) write in support of division of the vas deferens in obstructive prostatic enlargement.

Harrison believes that, in many instances, the division of the vas or both vasa is capable of affording the same relief in cases of enlarged prostate as removal of the testicle itself, and suggests that, as in many cases of prostatic enlargement it is difficult to say what is the exact nature of the enlargement, division of the vas might first be done as a tentative measure.

Certain effects are noted as a result of division of one vas or both vasa—viz., some change in the size and consistence of the testis in the way of shrinking and softening; analogous alteration in the prostate as discovered by rectal examination; easier introduction of the catheter, followed by less liability to cystitis and hæmorrhage; longer intervals between urinations, "in some instances periods of two or three hours have been doubled."

The operation is thus described. The scrotum is shaved and "prepared antiseptically." The cord is felt for as it enters the scrotum and held between the finger and thumb. An incision about an inch long is then made vertically over the cord, and the vas is separated from the other tissues. It is held up by a hook, and a silk ligature applied round the base. The extraneous loop is then removed by scissors, and the wound closed.

Two cases, aged respectively 73 and 72, are mentioned, where great benefit followed from the operation as above described.

Helferich has resected the vas in ten cases, and in all he "witnessed a satisfactory result." Only two of his cases were put under chloroform.

Tuberculosis of the Wrist-Joint.—Mordan devotes a lengthy article in the *Revue de Chirurgie* for March, 1896, to tubercular disease of the wrist-joint from the point of view of morbid anatomy and *resection.* The various modes of onset and development as observed in sixty-six cases are carefully described, but only the conclusions at which Mordan has arrived can be given here. (1) The disease originates twice as frequently in bone as in synovial membrane. The two classes can be roughly distinguished as *dry* and *moist* respectively. (2) When osseous in origin the *carpus* is most frequently the starting point. Two varieties are noted, one with a tendency to attack the extremities of the fore-arm bones, the other with a greater proclivity to invade the metacarpals. As a rule, all the carpal bones should be removed, with the occasional exception of the *pisiform* and the *trapezoid.* (3) Tuberculosis of the ends of the radius and ulna is generally epiphysial, and there is a marked tendency to the formation of sequestra or large cavities. High resection is often necessary. (4) Primary disease of the metacarpal bones is comparatively rare, but they are frequently secondarily affected. Hence when the carpus is extensively involved, it is advisable to remove the ends of the metacarpal bones. (5) Disease of the tendons does not contraindicate resection. They can be removed with considerable freedom. Emphasis is, however, laid on preserving the periosteum and capsule as much as possible. (6) Resection of the wrist-joint occupies the same position as that of other articulations of the upper limb.—T. W. J.

Prostatis Glandularis Subacuta.—Maget describes a case of a not infrequent form of prostatic disease which Guyon proposes to call *prostatite glandulaire subaigue d'emblée totale ou partielle.* The patient, aged 21, of robust health, contracted a gonorrhœa in November, 1895. No local treatment for fifteen days. Then slight hæmaturia and severe dysuria. Gonococcus in discharge and in urine. Rapid development of cystitis. Three days after appearance of hæmaturia, pain referred to rectum and obstinate constipation. Prostate enlarged. Six weeks later, as purulent discharge continued after disappearance of cystitis, patient was examined by Guyon, who found prostate considerably enlarged, very hard, and quite overlying rectum. No points of softening, but numerous small projections on surface. Palpation not painful. Rapid recovery under mercurial suppositories. Some little thickening remained round prostate. The chief clinical features are the subacute onset, enlargement of prostate (total or partial), glandular projections on surface, periproctitis, absence of pain on palpation, apyrexia, subsidence under treatment. For differential diagnosis, see original paper in *Annales des Maladies des Organes Génito-Urinaires,* March, 1896.—T. W. J.

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GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR THE FIVE WEEKS ENDING 23RD MAY, 1896.

	WEEK ENDING				
	April 25.	May 2.	May 9.	May 16.	May 23.
Mean temperature,	52·4°	47·7°	55·0°	56·9°	54·2°
Mean range of temperature between day and night,	17·1°	13·4°	23·3°	27·5°	14·9°
Number of days on which rain fell,	1	4	...	1	3
Amount of rainfall, ins.	0·04	0·62	...	0·04	0·85
Deaths registered,	280	258	265	286	283
Death-rates,	20·7	19·0	19·5	21·1	20·9
Zymotic death-rates,	2·6	2·7	2·9	3·2	4·6
Pulmonary death-rates,	6·0	5·1	5·9	5·0	6·0
DEATHS—					
Under 1 year,	74	57	48	73	49
60 years and upwards,	49	36	37	53	42
DEATHS FROM—					
Small-pox,	...	...	...	...	...
Measles,	5	8	7	6	18
Scarlet fever,	4	3	...	2	5
Diphtheria,	...	...	1	...	1
Whooping-cough,	21	14	17	24	25
Fever,	2	2	6	2	5
Diarrhœa,	3	9	8	10	9
Croup and laryngitis,	...	1	1	...	2
Bronchitis, pneumonia, and pleurisy,	60	42	52	54	56
CASES REPORTED—					
Small-pox,	...	...	...	...	...
Diphtheria and membranous croup,	12	3	9	4	4
Erysipelas,	15	23	25	18	15
Scarlet fever,	63	36	42	42	49
Typhus fever,	1	2	...	...	...
Enteric fever,	12	8	26	24	19
Continued fever,	...	...	...	...	...
Puerperal fever,	1	2	1	1	3
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SANITARY DEPARTMENT,
GLASGOW, *27th May, 1896.*

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